A Lecture
ON
THE PRINCIPLES OF VACCINE-THERAPY.

Delivered before the Harvey Society of New York

BY SIR A. E. WRIGHT, M.D. DUB., F.R.S.,
SOMETIME PROFESSOR OF PATHOLOGY, ARMY MEDICAL SCHOOL, NETLEY; DIRECTOR IN MEDICAL CHARGE OF THE DEPARTMENT FOR THERAPEUTIC INOCULATION, ST. MARY'S HOSPITAL, LONDON, W.

INTRODUCTORY.

GENTLEMEN,—I have undertaken to outline to you to-night—so far as I can do so within the limits of a single lecture—the principles of vaccine-therapy—i.e., of the treatment of bacterial disease by the inoculation of the corresponding vaccines. Let me preface what I have to say to you on this subject by asking you briefly to review with me the methods—other than vaccine-therapy—which we have to-day at disposal for the treatment of bacterial disease. The following are, I think, the only methods which come here into consideration: (1) treatment by chemical antiseptics; (2) treatment by the extirpation of the obtrusive focus of infection; (3) treatment by the determination of lymph to the focus of infection; (4) serum-therapy; and (5) expectant treatment.

1. TREATMENT BY CHEMICAL ANTISEPTICS.

Antiseptics have found in medicine a threefold application. They have been locally applied with a view to holding in check and extinguishing localised bacterial infections. They have been used for the purpose of checking putrefaction in discharges and devitalised tissues. They have been administered internally with a view to checking microbial growth in the blood or in regions which can be reached only by the channel of the blood. Neither the second nor the third of these applications calls for any discussion. There has never been any doubt as to the possibility of suppressing putrefactive changes by antiseptic irrigations. And it is now all but universally recognised that it is futile to attempt to check bacterial growth in the interior of the organism by antiseptics which have—as our present antiseptics have—a greater affinity for the constituent elements of the body than they have for any bacteria.[1] Attention may therefore here be concentrated upon the issue as to whether the antiseptic applications are effective in holding in check and extinguishing localised bacterial infections.

It is, of course, currently believed that this method of treatment is effective. It is in this faith that the surgeon introduces antiseptics into septic wounds or, where he happens to be so minded, into abscess cavities. It is in this faith that the physician resorts in the case of pulmonary infections to antiseptic inhalations. And it is in this faith that the dermatologist, gynæcologist, laryngologist, aurist, and genito-urinary specialist are each strenuous—in the application of antiseptics to the particular province of the body which he takes under his care. It will be profitable for us to collate the facts and to consider whether there is in reality any trustworthy basis for the belief that inspires all this practice.

Significant in this connexion appears to me the fact that antiseptics are now by general consent abandoned in connexion with the treatment of ordinary surgical wounds. Significant also is it that the practice of introducing antiseptics into abscess cavities—erstwhile so common—is now less and less frequently resorted to. Significant, again, is it that treatment by antiseptics in case of bacterial invasions of mucous membranes is to-day more and more frequently followed up by curetting, scraping, and so-called 'radical' operations. Above all significant, is it that so distinguished a dermatologist as Sabouraud should sum up the results of antiseptic treatment of bacterial diseases of the skin as follows: "Curious, indeed, is the failure of antiseptics in connexion with the treatment of bacterial diseases of the skin. Quite colossal were the expectations which were entertained with regard to what would be effected. What has actually been accomplished by antiseptics amounts in point of fact to almost nothing." The results which have been obtained in connexion with pulmonary infections by antiseptic inhalations and in connexion with bacterial infections of the genito-urinary passages by 'urinary' and other antiseptics are, I am persuaded, neither better nor worse than those which have been obtained in connexion with diseases of the skin.

Now all this failure of antiseptics is, I submit, only what might *a priori* have been expected. Let me put the case to you as I see it. It is, of course, axiomatic that antiseptics can take effect only upon those bacteria with which they come into contact. It is obvious also in the case of bacterial infections of the skin and mucous membranes that the infecting bacteria will not all be lying on the surface, and that they will not, when lying on the surface, be limited with respect to their distribution to those regions which are accessible to antiseptics. It follows that it will be quite unreasonable to expect from any application of antiseptics a complete sterilisation. In every case a residue of bacteria will survive. These will inevitably multiply and reoccupy the disinfected surface.

And this is not all. The antiseptic will not, as the unthoughtful assume, add its antibacterial power to the antibacterial power of the living organism. On the contrary, the antiseptic will directly antagonise the protective forces which the living organism has at command. It will paralyse the phagocytes, and will abolish the antibacterial power of the blood fluids. The disinfected surface will thus, by the action of the antiseptic, be left 'swept and garnished,' to await reoccupation by the expropriated bacteria.

And, again, this is not all. The antiseptic application will also injure the histological elements and, in particular, the capillaries of the tissue to which it is applied. It will thus lead to an outpouring of lymph from the disinfected surface. That outpouring will not only wash away the antiseptic, but it will, where a skin surface is in question, convert the natural dry keratin armour of the normal epidermis into a sopping, lymph-sodden blanket in which bacteria will easily establish themselves.

2. TREATMENT BY THE EXTIRPATION OF THE OBTRUSIVE FOCUS OF INFECTION.

In the case where the invading bacteria have penetrated into the interior of the body their destruction by antiseptic applications will be obviously out of question and the policy of proceeding against the bacteria by surgical methods will come up for consideration.

I can understand that extirpation may be imperative where an organ has been completely disorganised by invading bacteria and where there is danger to life from the spread of the infection. I can understand, also, that a case can be made out for extirpation where there is prospect of removing all the infecting bacteria without danger or sensible mutilation. Lastly, I can understand that it will be an added advantage if an extirpation operation removes along with the infecting bacteria a useless organ which is specially subject to infection. But assuredly these are not the conditions under which the majority of scraping and extirpating operations are undertaken. And in particular these are not the conditions which confront us in those extirpation operations which are employed as a routine treatment in connexion with localised tuberculous infection. Here long before the surgeon has been called upon the scene many of the bacteria may, by the agency of the blood and lymph stream, have been carried beyond reach of his knife.

It will be clear that it cannot be claimed for extirpation operations undertaken in these circumstances that they are in any real sense of the term 'radical operations.' They are operations which aim only at the extirpation of one or more obtrusive foci of infection. In harmony with this conclusion is, I submit, the fact that tuberculous disease so often recurs after operation—exceptionally, in the form of general tuberculosis; commonly, as a localised process in the site of the operation, or elsewhere. Such results would at first sight appear to be adequately explained by the mechanical disturbance in the focus of infection, or by the incomplete character of the operation. But probably there is at work here also another factor. A reduction in the antibacterial power of the blood may, as we shall see, supervene upon operative interference.

3. TREATMENT BY THE DETERMINATION OF LYMPH TO THE FOCUS OF INFECTION.

The method of extirpation by the knife is only one of the methods which can be employed for the treatment of bacterial

[1] We have a general formula for such antiseptics when we say, in technical terms, which perhaps improve a little on those of Ehrlich, that they are more "histotropic" than "parasitotropic."

infections when these have passed beyond the reach of antiseptic applications. Of the other methods the more important are the application of hot fomentations, the evacuation and drainage of abscess cavities, massage, the methods of Bier and Klapp, and the various forms of radiotherapy. In all of these methods—and it is this which has induced me to bring them together here under a single heading—we have, as a prime factor, a determination of lymph from the circulating blood to the focus of infection; and, as a secondary factor, a conveyance into the circulating blood of a lymph which has in passing through the focus of infection impregnated itself with bacterial products.

I shall, before I have done, explain to you, in connexion with the passage of blood fluids into the focus of infection, that these blood fluids will exert in every case some antibacterial effect upon the invading bacteria; and, in connexion with the passage of bacterial products from the focus of infection into the circulation, that these products will effect very important modifications in the blood both in the direction of reducing and in the direction of increasing its antibacterial power. There are thus *a priori* grounds for expecting useful therapeutic effects from each and all of these methods. It is in your knowledge that such useful therapeutic effects are every day achieved. There are, however, also, as you will already have appreciated, *a priori* grounds for expecting that there will occasionally result from the application of these methods not only failure but disaster. It is familiar matter to you that these methods are often ineffective. You know also that disaster has followed massage, the venous congestion of Bier, and radiotherapy. It will presently become clear that disaster may on *a priori* grounds be expected wherever, by the application of these methods, bacterial products are introduced into the blood in immoderate quantities.

4. SERUM-THERAPY.

All the therapeutic methods which have been in question above have application only to localised bacteria invasions. Serum-therapy has more ambitious aims. After a successful application in connexion with the treatment of diphtheria this method has—and this without intermediary trial in connexion with simple, localised, and correspondingly more tractable forms of infection—been applied to the treatment of the most desperate and complicated varieties of bacterial infection. Serum-therapy has, as you know, found application not only in connexion with septicæmic infections but also in those most complex mixed infections which we have to deal with in pulmonary phthisis. In these applications serum-therapy has, I submit, everywhere disappointed expectation.

It is not enough to realise the fact of failure. Wherever, in connexion with the application of any therapeutic method, we meet with repeated failure we are called upon to make a critical regress upon the facts and inquire into the rationale of our method. We are, in accordance with this principle, here required to consider whether there is any assured basis for the treatment of bacterial infections by serum-therapy.

Serum-therapy is, in point of fact, built upon the postulate that the animal organism possesses the capacity of responding to the incorporation of practically unlimited quanta of bacterial cultures by a practically unlimited output of antibacterial substances. Now this assumption, while it might be thought to win support from the analogy of the effective immunising response which occurs where diphtheria or tetanus toxin is incorporated into horses, is, as I hope presently to show you, entirely out of accord with the results which are ordinarily obtained by the inoculation of bacterial cultures. When you shall have considered how different are the ordinary everyday events which supervene upon bacterial inoculations from that miracle of immunisation which accomplishes itself when diphtheria toxin is administered to a horse, you will, I believe, be quite prepared to recognise that we have no justification for the assumption that there will result from the introduction of a moderate quantum of serum into a patient's blood anything in the nature of a marked increase of his antibacterial power.

5. EXPECTANT TREATMENT.

I now come to the expectant method of treating bacterial disease, the last of the five therapeutic methods which were enumerated at the outset of this paper. We have, as you appreciate, in the expectant treatment a therapeutic method which is based upon the adoption of a policy of non-intervention as between the invaded organism and the invading bacteria: a therapeutic method which commits the destiny of the patient—so far as that destiny is involved in the issue of his conflict with the invading microbes—entirely into the hands of chance.

We are all agreed that by this method, which consists essentially in feeding and nursing the patient and keeping him at rest in bed, far better results are achieved in generalised bacterial infections than any that could be obtained by active medication. We need only to call to mind here the fact that from 80 to 90 per cent. of recoveries are under the expectant treatment achieved in typhoid fever.

There is, however, also a reverse to the medal. We have in the case of typhoid fever from 10 to 20 per cent. of fatal cases. We have in streptococcal septicæmias and in plague—to mention only two out of the more formidable bacterial infections—a mortality in comparison with which the percentage of recoveries is quite insignificant. Further, we have in Malta fever a considerable percentage of cases in which the fever drags out almost indefinitely.

This indictment of failure—of failure in connexion with septicæmic diseases—is very far from being the only indictment which can be brought against the expectant treatment. Let me ask you to realise that generalised bacterial infections are, comparatively speaking, rare and transient incidents in life. The really serious ills of life are the various localised bacterial infections which sooner or later fasten upon every man, never afterwards releasing their hold. It follows from this that a graver allegation is brought against the general value of a method of treating bacterial disease when it is alleged that such method has no application in connexion with localised bacterial processes, than when it is pointed out, as it has been here in connexion with the expectant treatment, that it is a method which utterly disappoints in many varieties of generalised infection.

Now the graver charge of having no application in connexion with localised bacterial diseases may be brought against the expectant method of treatment. It is only, if I rightly apprehend the matter, in the case where life is threatened by the entrance of bacteria or bacterial products into the blood—and, as we shall see later, not even invariably in that case—that nature addresses herself in a serious manner to the task of immunisation. As long as a bacterial invasion is still strictly localised nature seems to oppose to it nothing more than a passive resistance. It follows that it is idle in connexion with localised infections to wait upon nature and to expect from her any work of immunisation. I am wont to insist that the statistics of the expectant method of treatment in the case of localised bacterial infections are hardly more favourable than those of the Pool of Bethesda. You will remember, in connexion with that Pool, that an angel was wont to come down and trouble the waters *once* in seven years, and that, after that event, the man who stepped down *first* into those waters was cured. You will, I believe, not fail to see how the facts are mirrored to us in this comparison if you will take any series of cases of endometritis, middle-ear disease, chronic bronchitis, lupus, or let it be any other localised bacterial disease, and will elicit in connexion with each case the term of years during which the infection has persisted. I myself can call to mind, from among the patients I have under treatment, no fewer than three who have suffered from lupus each for a period of over 40 years.

PRINCIPLES OF THE METHOD OF VACCINE-THERAPY AND SKETCH OF THE MACHINERY OF IMMUNISATION.

Having now passed in review with you the therapeutic methods which are in use in the treatment of bacterial disease, I propose to turn to the main theme of my discourse and to deal with the treatment of bacterial disease by vaccine-therapy. The essential feature of this method is the scientific exploitation for therapeutic uses of the protective machinery with which the organism is equipped. We shall do well here to turn our attention for a moment to a study of that machinery.

There are two elements which come into consideration in connexion with the protection of the organism against invading micro-organisms—the leucocytes with their digestive ferments constitute one of these elements; the antibacterial substances in the blood fluids constitute the other. A word or two will be appropriate in connexion with each of these elements of our protective machinery.

(*a*) *Leucocytes.*—The leucocytes come into consideration in connexion with resistance to bacterial infection by virtue

of the fact that they are capable of ingesting bacteria and of disintegrating these by intracellular digestion. We may usefully distinguish between '*spontaneous*' and '*induced*' phagocytosis. By the former of these terms we may denote that process of ingestion which comes under observation when bacteria which have not been subjected to the action of the blood fluids are brought in contact with washed leucocytes in an indifferent medium such as physiological salt solution.

Spontaneous phagocytosis as here defined is distinguished by the fact that it is a comparatively slow process; further, by the fact that the number of bacteria ingested by each leucocyte attains ordinarily only very modest proportions; again, by the fact that the ingestion is irregular in the sense that individual polynuclear leucocytes differ very strikingly from their congeners with respect to their intake of bacteria—the majority picking up from such a bacterial suspension as is ordinarily employed very few, if any, bacteria, while others ingest relatively considerable numbers; and lastly, by the fact that the ingestion of bacteria can be completely suppressed by employing in the phagocytic mixture certain concentrations, in the case of the tubercle bacillus a concentration of slightly over 1 per cent., of NaCl.

Strikingly different from such 'spontaneous phagocytosis' is the *induced phagocytosis* which comes under observation when leucocytes are brought in contact with bacteria which have been, or actually are at the moment, subjected to the action of serum. The 'induced phagocytosis' which occurs in these conditions is distinguished, first, by the fact that it is an exceedingly rapid process; secondly, by the fact that every adult leucocyte, with hardly an exception, is here phagocytic (instead of some few leucocytes taking part immoderately, while the others abstain); thirdly, by the fact that the leucocytes will, in the case where the supply of micro-organisms is unrestricted, ordinarily fill themselves to absolute repletion; and fourthly, by the fact that the leucocytes will continue to ingest bacteria in a concentration of salt which entirely suppresses 'spontaneous phagocytosis.'

Seeing that phagocytosis of bacteria without subsequent intracellular digestion would, from the point of view of the protection of the organism, be meaningless, it will be plain to you that the digestive powers of the leucocytes would logically here come up for consideration. Into such discussion I am, however, for the present debarred from entering, not having as yet qualified myself to speak at first hand on the matter. Permit me none the less to give here my tribute of admiration to the brilliant initiating work which has been done on this subject by your fellow member, Dr. Opie.[2]

(*b*) *Antibacterial elements of the blood fluids.*—The blood fluids differ essentially from the nutrient fluids which are ordinarily employed by the bacteriologist for the cultivation of micro-organisms in the respect that, while the latter are nutrient fluids pure and simple, the blood fluids contain in addition to nutrient constituents also antibacterial elements.

The antibacterial elements which are here in question are "bacteriotropic elements" in the sense that they turn towards and enter into combination with elements of the bacterial body. Our knowledge of the modifications which are effected in the bacterial body under the influence of the bacteriotropic substances in the blood fluids is, it cannot be doubted, extremely incomplete. So much, however, already stands fast that the effect of the blood fluids upon the bacterial body may manifest itself in different ways. The bacteria may be killed without being dissolved. The bacteria may not only be killed but dissolved. We may group these together as bactericidal and bacteriolytic effects. The bacteria may be so altered as to agglutinate in the presence of salt (agglutination effect). The bacteria may be so altered as to be readily ingested by phagocytes (opsonic[3] effect).

Inasmuch as the blood fluids produce in bacteria the different chemico-physical effects here enumerated, and inasmuch as agglutinating and opsonic effects can be obtained independently of each other, and independently of any bactericidal and bacteriolytic effects, we may assume that we have in the blood fluids in addition to bactericidal substances (or bactericidins) and bacteriolysins also agglutinins and opsonins. Of these four varieties of bacteriotropic substances the opsonins appear to be the most important. We may ascribe to them a predominating importance, first, because it can be shown that the opsonic effect is, by either the normal or immune blood, exerted upon every species of bacteria, whereas the agglutinating effect is exerted only upon special varieties of bacteria, and the bactericidal and bacteriolytic effect among pathogenic micro-organisms apparently only upon the typhoid bacillus and the cholera vibrio.

The opsonins derive further practical importance from the fact that they can be very accurately measured (the error of estimation in the case of normal bloods and in the hands of a good worker being rarely greater than plus or minus 5 per cent.) and that it is possible, seeing that the opsonic effect of the normal blood fluids is very marked, to register not only (as in the case of the agglutinating power) an increase but also a reduction in the opsonic power of the blood. Such increase and reduction in the opsonic power of the blood are, as you will of course understand, measured by comparing the amount of purely induced phagocytosis which is obtained with a normal blood with the amount of purely induced phagocytosis which is obtained with the blood of the patient under examination.

From the consideration of the protective machinery of the organism let me now turn to the consideration of certain preliminary points in connexion with the bacterial vaccines which operate upon that machinery. The first question which confronts us here is the question as to how far the success of an inoculation process is dependent upon the particular composition of the vaccine. I have in view here in speaking of the particular composition of the vaccine not the axiomatic requirement that it must be affiliated to, or connected by affinity with, the microbes which it is designed to combat, but rather the minute details with regard to its source and manufacture.

THE QUESTION AS TO HOW FAR THE PARTICULAR COMPOSITION OF THE VACCINE IS A MATERIAL ELEMENT IN THE SUCCESS OF AN INOCULATION PROCESS.

Reflection will make clear that the success of an immunisation process must depend, in the first place, upon the power of immunising response which the organism may happen to possess with respect to the particular bacterial infection or intoxication process which is in question, and, in the second place, upon (*a*) the composition of the vaccine and (*b*) the dosage and method of administration. Up to the present the composition of the vaccine has been considered to the practical exclusion of the question of dosage. Whenever ill-success has attended a process of immunisation, or whenever it has appeared to any one that it "ought" to be possible to improve upon the result already obtained; straightway the suggestion has been put forward that some change "ought" to be made in the composition of the vaccine. In such cases living vaccines have been proposed as substitutes for sterilised vaccines; vaccines derived from virulent cultures as substitutes for vaccines derived from avirulent cultures; vaccines derived from cultures more closely affiliated to the microbes against which protection is sought as substitutes for vaccines obtained from cultures less closely affiliated; vaccines derived from agar cultures for

[2] Since the date of this lecture I have corroborated the results of Opie and have found a method of displaying his results by the aid of leucocytes obtained from blood drawn from the finger. It may perhaps be of interest to subjoin here the technique I have employed. It is modelled upon the inoscopic methods of Jousset. A capillary pipette which is fitted with a rubber teat is taken in hand. A puncture is now made in the finger, and one volume of blood—a quantity of from 10 to 20 cubic millimetres is quite adequate for our purposes—is aspirated into the stem of the pipette. We now, filling up each time to the same mark, aspirate into the pipette four equal volumes of distilled water, and mix these four volumes of water with the one volume of blood in the neck of the pipette. By this manœuvre we hæmolyse all the red corpuscles, leaving the white corpuscles intact. We now place the pipette in an incubator at blood heat and keep it there for some ten or more minutes. The diluted blood will now have coagulated in the neck of the pipette. Our next step is to fill in another pipette with physiological salt solution and to project this in the form of a stream upon the coagulated blood. We continue this process till the clot has contracted firmly upon the white corpuscles which are held in suspension in its meshes, and till every trace of serum has been washed away. We now remove the last traces of our wash water and fill into the pipette a quantum of liquefied 20 per cent. gelatin equivalent to twice the original volume of blood. Finally, we seal up the tube in an air-tight manner and place it in an incubator regulated so as to maintain a temperature of about 50° C. After an interval of from 24 to 48 hours we find that the clot has undergone autodigestion and that the gelatin surrounding the clot has lost its power of solidifying on cooling. We verify, in the case of a control-tube which has been treated in exactly the same manner except in the respect that it has received a small addition of serum, that these changes do not occur in the presence of serum. The whole procedure is of course carried out in an aseptic manner.

[3] Derived from the Greek οψωνεω, and the Latin opsōno,—*I convert into palatable pabulum.*

vaccines obtained from broth cultures; and vaccines obtained by the trituration of bacteria, by autolysis, or treatment by caustic alkalies and subsequent precipitation with acids, as substitutes for vaccines which have been sterilised in the ordinary way by heat.

It has been claimed in connexion with each of the modifications here in question that its employment is dictated both by weighty *a priori* considerations and analogies and by the event of actual experiments. Of the *a priori* considerations and analogies which have been adduced I will consider only the contention that living vaccines ought to be preferred to vaccines which have been sterilised by heat on the ground that inoculations with the former furnish close analogies with actual infections which are known to confer immunity, whereas there are no such close analogies between these last and inoculations with vaccines which have been subjected to the action of heat. To this I could rejoin that even supposing the temperature of boiling water, which the objector has here in view, to produce in a bacterial culture chemical changes as fundamental as those produced by that temperature in egg-albumin, a temperature which just suffices for sterilisation might quite well leave the chemical constitution of a bacterial culture for all practical purposes unaltered, just as there is a temperature, short of the coagulating temperature, which will, when applied to a hen's egg, prevent germination, leaving the chemical characters of its albuminous substances substantially unaltered.

If I refrain from all attempt to meet with analogical reasonings of this kind the many other suggestions which have been put forward in connexion with the constitution of bacterial vaccines, it is because I hold that in scientific controversy the proper procedure is always either to bring proof of a contested proposition, or to make *tabula rasa* by demonstrating that such proof is not forthcoming.

Now analogical reasonings cannot supply proof; nor can they, seeing that no argument from analogy can ever be effectively discredited by the production of any conflicting analogy, restore to us that *tabula rasa* which is ever, next after assured knowledge, the most excellent intellectual possession.

Quite other are our 'returns of profit' where we proceed by the pathway of reasoning from experiment. By this path we arrive always at some intellectual good. Where we find a contested conclusion to rest upon a firm basis of experiment, we are entitled to incorporate it in a definitive manner into our corpus of knowledge. Where we find a flaw in the chain of reasoning we are entitled to reject and put far from us the conclusion as we do so—recovering for future exploitation unencumbered foundations.

Allow me, in view of these general considerations, to turn to the experimental evidence, and let me try to show you that the reasoning which has been held to establish that a vaccine of a particular composition is more effective than a vaccine of somewhat other composition has in every case been inconclusive.

Let us begin by realising that where an animal which has been inoculated with a particular vaccine succumbs to a test inoculation this result does not establish the conclusion that the vaccine which was employed is ineffective. It establishes only, either that the vaccine was ineffective; or, that the dosage was ill chosen; or that the test inoculation was ill-timed; or that the test inoculation was excessive; or that two or more of these factors were at fault. *A fortiori*, where comparative experiments are undertaken upon two animals or upon two different sets of animals with different vaccines, and where one of these survives while the other succumbs to the test inoculation all that has been established is that the one vaccine employed in a particular dose x has at the date of the test inoculation conferred a greater measure of protection than another vaccine employed in another dose y. Now it is obvious that unless we have assurance that the doses x and y which have been employed in the comparative experiments represent the optimum doses of these vaccines (or doses which stand in each case in the same relation to those optimum doses) we can have no assurance that the survival or non-survival of our animals is determined by the difference in the vaccine and not by a difference in the dose. Now no serious attempt has ever been made to employ in comparative experiments exactly equivalent doses of competing vaccines.

There has thus, in the course of our study of the question as to how far the particular composition of the vaccine is material to the success of an inoculation process, come to light the fact that we are not yet in a position to affirm that one variety of vaccine possesses an advantage over another from the point of view of its power of conferring immunity. It has also become clear that no progress can be made in the resolution of this ulterior question until we have settled the preliminary questions as to how the equivalent doses of two vaccines can be arrived at, and as to how the immunising efficacy of a bacterial inoculation can be most effectively tested. So material are a comprehension and a resolution of these issues to the understanding of the principles of vaccine-therapy that I need not make any apology for embarking upon their consideration.

WHAT IS THE BEST METHOD OF MEASURING THE IMMUNISING EFFECT PRODUCED BY THE INOCULATION OF A BACTERIAL VACCINE?

The method of test inoculation—i.e., the method of inoculating a living culture into an animal which has been previously treated with a vaccine and of comparing the result obtained in this animal with the result obtained on a control animal inoculated with a similar test dose of living culture—has hitherto been accepted as a perfectly satisfactory method of gauging the immunising effect of a vaccine. While it is undeniable that this method supplies in the case where the vaccinated animal survives and the control animal succumbs a satisfactory proof of the immunising power of the vaccine, it may in the case where the vaccinated animal succumbs deceive us in deepest consequence. Where the test inoculation has been undertaken with an excessive quantum of the living culture we may fail to register the acquirement of a quite considerable measure of protection. Again, when the test inoculation follows hard upon the inoculation of the vaccine the animal may, and we shall presently see the explanation of this, succumb as rapidly as, or even before, the control animal without any fault being attributable to the vaccine. In fact, the more rapid death of the vaccinated animal after a premature test inoculation may, paradoxical as this may at first sight appear, be in reality indicative of the potency, instead of the impotence, of the vaccine.

It is clear, if these things are so, that there may quite well be a more excellent method of gauging the immunising effect of a vaccine than that which is furnished by judging by the event of a test inoculation. Reflection will show that if we can take it as assured—and I submit that we can—that the machinery of immunisation is, at any rate in its broad features, understood, and if it is indubitable—as in point of fact it is—that the phagocytic reaction of the leucocytes and the content of the blood in antibacterial substances can be measured with a degree of accuracy which is sufficient for all practical purposes, and if by means of these quantitative methods it is feasible to construct curves showing the march of events and the changes which are associated with the inoculation of a bacterial vaccine, it must be possible by the aid of such curves to gauge in a more accurate manner than by any test inoculation the immunising effect of a vaccine, and to determine in the case of any two vaccines what are the doses which produce precisely equivalent effects. The method of vaccine-therapy which is here in question proceeds upon these assumptions. It postulates that we have in the curves which set forth changes in the bacteriotropic power of a patient's blood, and in particular in the curves which set forth changes in the opsonic index of his blood, a record of blood changes which exert in every case a dominating influence upon that patient's bacterial infection. I am, let me assure you, very sensible of the fact that justification for these generalisations can be afforded to you only by the gradual accumulation of evidence. Allow me, however, pending the time when such evidence shall have accumulated in your hands, to forestall events and to endeavour to call up before you by the aid of this immunisation chart a picture of the facts which were elicited by my fellow worker Captain S. R. Douglas, I.M.S., and myself in connexion with a case of localised staphylococcus infection which was successfully treated by the inoculation of staphylococcus vaccine.

INCREASED PHAGOCYTIC RESPONSE IS ASSOCIATED WITH SUCCESSFUL IMMUNISATION, AND THIS INCREASED PHAGOCYTIC RESPONSE IS DEPENDENT UPON AN INCREASE IN THE OPSONIC POWER OF THE BLOOD FLUIDS AND NOT UPON AN INCREASED CAPACITY FOR SPONTANEOUS PHAGOCYTOSIS ON THE PART OF THE WHITE CORPUSCLES.

The immunisation chart which I here display will furnish to you a typical illustration of the achievement of increased

phagocytic response in association with successful immunisation. The phagocytic power of this patient's blood was when he came under treatment for an aggravated localised staphylococcus infection equivalent, as you see in the chart, to less than half that of a normal man. You here see that his power of phagocytic response was by the agency of successive inoculations of a staphylococcus vaccine augmented till it was equivalent to nearly three times that of a normal man.

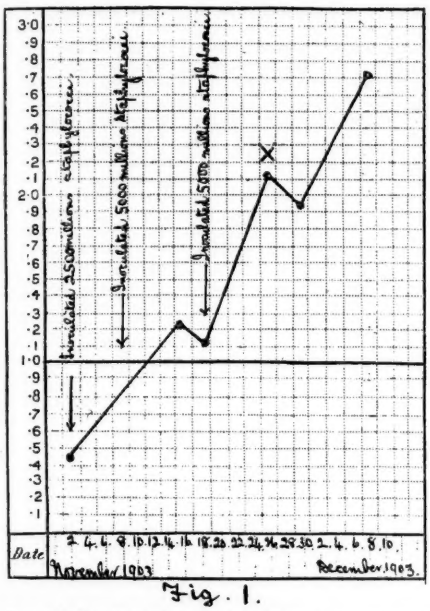


Fig. 1.

Immunisation-chart of a case of staphylococci sycosis treated by inoculations of a staphylococcus vaccine.

At the point which is indicated by an *x* upon the chart—and the clinical condition of the patient had by this time improved in a marvellous manner—an investigation was set on foot with a view to determine whether the increased phagocytic response which had been achieved was referable to an increased power of spontaneous phagocytosis on the part of the white corpuscles, or to an increased opsonic power in the blood fluids. In order to decide between these two alternatives a duplicate series of tests was instituted. In the experiments of Series I. washed corpuscles prepared from the patient were tested (*a*) in association with his own serum and (*b*) in association with the serum of the normal man who served a control. In the experiments of Series II. the washed blood corpuscles of the normal man who served as a control were tested (*a*) in association with the immunised patient's serum and (*b*) in association with his own serum. In each case the technique was that which I have elsewhere described, the same amount of the same staphylococcus suspension being in each case introduced into the mixture of corpuscles and serum. The phagocytic counts which were obtained under these circumstances were as follows:—

	Phagocytic count (i.e., average number of microbes ingested by each P.W.B.C.).
Series I.	
(*a*) Washed *corpuscles* of the *immunised patient* employed in association with the *serum* of the *immunised patient* ...	25·7
(*b*) Washed *corpuscles* of the *immunised patient* employed in association with *serum* of the *normal man* who served as control	13·0
Series II.	
(*a*) Washed *corpuscles* of the *normal man* who served as control employed in association with the *serum* of the *immunised patient*	28·2
(*b*) Washed *corpuscles* of the *normal man* who served as control employed in association with the *serum* of the *normal man*	13·0

What now do we learn from these phagocytic counts? We learn from a comparison of the phagocytic counts in experiments (*a*) and (*b*) in Series I. that the serum is a factor which profoundly influences phagocytosis. It does not emerge from a comparison of the two phagocytic counts, Series I. (*a*) and (*b*), inasmuch as here in each case the same variety of leucocytes was employed, whether or not the phagocytic count can be influenced by the variety of leucocytes. A comparison of the phagocytic counts (*a*) and (*b*) of Series II. once more shows that phagocytosis is influenced by the variety of serum. And, again, for the same reason as before, a comparison of these two phagocytic counts leaves it unresolved as to whether phagocytosis can be influenced by the variety of leucocytes which is employed.

From consideration of the all but complete identity of the phagocytic counts obtained in Series I. (*a*) with the count obtained in Series II. (*a*), and again from the identity of the phagocytic count obtained in Series I. (*b*) and Series II. (*b*), it clearly emerges that the phagocytic count is uninfluenced by the variety of corpuscles employed. In short, the whole experiment teaches us that the changes which are associated with the acquirement of immunity are changes in the blood fluids and not changes in the white corpuscles. This conclusion, in addition to its theoretical interest, has also, be it remarked, an absolutely fundamental practical importance. It will make it clear that we may take the opsonic index of any blood as an index of the patient's power of phagocytic response.

(To be continued.)

An Address

ON

MEDICAL SCIENCE AND SCHOOL HYGIENE.

Delivered at the Opening of the Section of Physical Education and Training in Personal Hygiene at the International Congress on School Hygiene in the University of London on August 6th, 1907,

BY SIR JOHN W. BYERS, M.A., M.D., M.CH., M.A.O. (HON. CAUSA) R.U.I.,

PRESIDENT OF THE SECTION.

LADIES AND GENTLEMEN,—My first duty is to thank the organising committee of this great International Congress on School Hygiene—the first to be held in the British Empire—for the honour it has conferred upon me in appointing me to preside over one of the sections, and that the important one "Physical Education and Training in Personal Hygiene."

In reference to the subjects to be discussed in this section it would, indeed, be difficult to calculate what the British nation owes to two men who lived about the same period, who were intimate friends, and who each in a very marked way influenced the other in regard to all that is involved in the promotion of health of body and soundness of mind. I refer to Thomas Sydenham, the "Prince of English Physicians," the man who first correctly taught that medicine as a practical science depended upon close and accurate observation, who always advocated as a fundamental principle in its study an appeal to experience, and who achieved such a reputation that the great Dutch physician, Boerhaave, was accustomed to take his hat off whenever he mentioned his name and to style him "Angliae lumen, artis Phoebum, veram Hippocratici viri speciem." I refer also to Sydenham's friend, John Locke, the philosopher, who, largely owing to his sound judgment, exercised enormous influence over Sydenham and taught him the supreme value to a physician of that priceless gift—common sense. It was in no small degree owing to the personal sway of these brilliant men that towards the end of the seventeenth century there gradually took place a change in English thought in the direction of scientific research and the philosophy of common sense.

JOHN LOCKE, THE PIONEER OF SCHOOL HYGIENE.

In his very interesting treatise on "Some Thoughts concerning Education," published in 1693, Locke wrote: "A sound mind in a sound body is a short but full description of a happy state in this world. He that hath these two has little more to wish for, and he that wants either of them will

be but little the better for anything else." More than two centuries have passed since this most suggestive essay of Locke appeared and yet nothing has ever been written which brings out more clearly what should be the aim of physical education in our schools than the words which I have just quoted, written by the man who may fairly be described as the founder of school hygiene in England. At the present time, while the greatest interest is being taken in every department of education, it is a noteworthy and remarkable fact that people are coming to see that there is a very close association between education and the health of the people, that the axiom that there cannot be a healthy state in this world without health of body and mind was never more true than in the existing condition of society; in other words, it is at last beginning to dawn upon the public that it is absolutely essential that medical science must be more and more associated with the machinery of teaching. This most important principle—that is, the close relationship between medical science and the instruction of the young—has a very direct bearing upon both teacher and taught.

INFLUENCE OF MEDICAL SCIENCE ON TEACHER AND PUPIL.

At the present time in the world's history we are no longer content that a teacher of the youth of a nation should be one who simply hears lessons in a catechetical way and who guides his pupils in the ordinary routine of school studies; we *expect* that those who instruct children should have themselves passed through a training school or college where they have learned not merely the theory of education in all its branches but have acquired a knowledge of the common principles of bodily health and also of the methods of placing this information before children, and have been taught to observe and recognise those physical defects and mental weaknesses in their pupils which may require special care and attention. We also consider that our teachers should have a knowledge of the various systems of physical culture and be able to show some prowess in games, while from the point of view of the pupil modern opinion demands that the health of the children should in no way suffer while at school—nay, more, that the children should be instructed while there in the fundamental laws of elementary hygiene which, if acted upon, will help to make them useful and healthy citizens of the State. Indeed, one of the most remarkable tendencies of our modern education is the desire to make the school not only of use but a real pleasure in training boys and girls more and more in the practical side of life, in developing initiative, and in fostering self-reliance, and especially in instructing them in the direction of how to keep healthy.

Now, if we look at what has been taking place of late in the most advanced nations of the world we shall be struck with the fact that ideas as to the relationship of the public schools to medical science have gone through a most interesting process of evolution. The first step in this developmental movement was taken with the object of preventing schools becoming centres of infectious or contagious disease, then followed the effort to supply to the children while in school a hygienic environment, that is, school-rooms properly seated, lighted, heated, and ventilated, and with no overcrowding. This in turn was succeeded by a demand for medical inspection of children, both on their entrance to the schools and during their subsequent school career in order to ascertain whether they were fit to go to school—that is, in a word, whether their physical condition was compatible with their being benefited by the instruction which they will require, and, if so, whether their sojourn in school was causing or increasing certain diseases, such as curvature of the spine, rickets, tuberculosis, anæmia, &c., and whether their apparent dulness, short-sightedness, deafness, or headaches, might not depend on preventable causes (eye, ear, and throat). Another great advantage of medical examination of school children would be that it would afford opportunities to obtain accurate scientific records of the measurements of the physical development of the body, in regard to such points as height, weight, chest capacity, and the like. We would thus arrive at approximate anthropometric standards and be able to observe if children were normal for their age, and also to ascertain in the case of the undersized whether their undeveloped condition was, from the associated history, probably due to hereditary or prenatal causes or to faulty rearing, improper nourishing, bad housing, unhealthy environment, or malnutrition. In this way facts would soon be collected which would have an important bearing on the question of physical racial degeneration. The latest stage in this evolutionary process in school life is the effort that is now being made to promote the physical health and development of the child.

PHYSICAL EDUCATION IN SCHOOLS.

Now this condition of vigour and good health, so far as the school is concerned (for the teacher can do little to settle that most serious coexisting public problem—the influence of the home environment), may be brought about, or rather an attempt may be made to solve the question, by various means.

1. The children while at school should be taught, both by example and by precept, the simplest rules of how to live, the necessity for fresh air and for pure water, and for healthy homes, and the relative nutritive value of the various kinds of food which are ordinarily used. They should be instructed in the simple and ordinary laws of health and temperance and in the importance of such matters of personal hygiene as cleanliness, the care of the skin, including the hair and nails and of the mouth and teeth (not more than 3 per cent. of all children of school age have sound teeth), how to deal with sudden emergencies, and how much can be done to prevent the onset and spread of infectious disease. There is no doubt that in schools with gymnasia personal hygiene can be best taught as it can be practically demonstrated there; that attention to the care of the body brings about that most desirable condition which is called "feeling fit." Girls should be taught the elements of cooking at school by practical lessons as well as the principles of housekeeping; and seeing that we now compel them to attend school, and in this way deprive them to a large extent of that home experience and personal contact with infants which was more the rule formerly, it is surely incumbent to see that they are taught those elementary truths as to the care of infants that all girls from ten to 13 years of age might know. I am fully convinced that the time has arrived when, if we are to put a stop to those conditions which bring about physical degeneration, especially in our large towns, and if we are to solve fully many pressing public health problems, such as the terrible wastage of infant life, as well as the survival of numbers of them with a poor physique and a weak constitution, and the preventable deaths caused by consumption, children in the primary schools should be instructed in hygiene and temperance. In order that this shall be carried out properly facilities should be afforded to the teachers for special training in these subjects, and finally, hygiene and temperance should be not only included in the curriculum of studies, but they should be reported upon by the inspectors of the schools. I trust that as a result of what will be brought before us at this great Congress by experts from all parts of the world England will, in the language of the Prince of Wales, "wake up" to her duty towards her school children.

2. The children should be made to do exercises both in the school and in the adjacent gymnasium, if there is one attached to the school. Nothing is more valuable for children who so often are kept for long periods in a cramped position than what are called the deep breathing exercises (which stimulate the circulation through the internal organs) combined with those movements which bring into play the muscles which move the spine backwards. When such exercises are engaged in by the pupils for a period varying from three to five minutes at the end of each hour, or even at the termination of every two hours in the schoolrooms (the windows of which should be open), they are of enormous value in quickening the circulation, in using up more oxygen, and in counteracting the deleterious effects of the school-desk and of a too long rest in one position or attitude.

3. Lastly, the children must be instructed in physical education and have time for games and athletic exercises. We want our children to be so trained physically that each faculty of the body may be fully developed, and this can be done (*a*) by those methods employed in Swedish schools, which consist mainly of movements without the use of any apparatus or musical accompaniment, which tend to develop groups of correlated muscles; (*b*) by gymnastic exercises and musical drill at the schools, and dancing in the case of girls; (*c*) by games in the open air, either in school playgrounds (and no school should be now constructed without them) or in athletic fields; and (*d*) by swimming when baths are available. In cities where there are public baths these might be utilised, and I am pleased to say that in my own

city, Belfast, the corporation (through its baths and lodging-house committee) recently made arrangements to admit schoolboys under 12 years of age, when accompanied by a teacher, free to the swimming ponds one day in each week, and it has requested the Commissioners of National Education in Ireland to empower the principals of the primary schools in Belfast to arrange that children attending these schools can avail themselves of these facilities during school hours.

PHYSICAL EXERCISES AND GAMES.

It would be a useless waste of time to discuss which of these plans is the better system of physical culture for children. My own opinion is that a combination of all of them will give the best results, each plan being suited to particular types of pupils and climatic conditions, and it is well to make young people realise that the use of physical exercises will prepare them all the better for being proficient in games and athletics. There can be no doubt that games do not train enough all the muscles of the body and perhaps do not give the same amount of strength as exercises, yet, on the other hand, games (which on medical grounds must not be compulsory on every boy and girl and which should be varied, properly selected, and judiciously supervised) do something more than increase bone and muscle and produce strength. They tend—in addition to bringing about a state of good health—to lay the foundation of mental and moral qualities which were of the greatest importance alike to the individual and to the community, and young people who worked together in the athletic or playing fields learned to "play the game"—that was, to sink their own personal ends or ambitions for the sake of the cricket eleven, or football or hockey team, of which they constituted only a part. In the athletic field a boy was trained to submit to discipline or even self-sacrifice (and sacrifice for a good cause was one of the noblest laws of life), and to obey his captain who was more experienced and had greater skill. The game-playing boy soon saw by the decision of the umpire that there were two ways of looking at a question—the interested or personal, and the scientific or unbiassed. A prig (that is, "a fellow," as George Eliot defines him, "who is always making you a present of his opinions") could not exist in such an environment. He also observed that a player apparently doing little in a distant part of the field often illustrated the truth of the words, "They also serve who only stand and wait," while by and by, if he himself became proficient, he in turn was selected as leader and had to maintain the prestige and position of his school. In such circumstances a boy learned (what was so important for him in the future) not merely to govern himself for the sake of his fellows but also to govern them in turn with tact and without friction. Games, as Mr. Alfred Lyttelton has recently pointed out in his address at Dulwich College, enabled boys to gain a command over their temper, and when played in the true spirit tended to develop such desirable qualities as courtesy and generosity to opponents. It was in this way that those who engaged in games at school gradually became possessed of gifts which must be of countless value in after life in training them to comprehend what was the real meaning and what was the proper object of citizenship, for one of the highest functions of a school was to send out those who had studied within its walls equipped in every respect, so as to be able to render that social service which the State might demand of them—in other words, to be good citizens of the Empire.

While urging the importance of physical education, let me say it must not be overdone either in the case of boys or girls; rather it must be regarded simply as a necessary and useful adjunct to the cultivation of the mind. They heard at present a great outcry against athletics, but it was not the athletics which did the mischief but all the publicity and noise and professionalism (with its attendant evils) associated with them. That gifted parodist, Mr. Owen Seaman, the editor of *Punch*, has well brought out the objectionable features of present-day athletics:—

> "Yet in a hundred scenes, all much the same,
> I know that weekly half a million men
> (Who never actually played the game)
> Hustling like cattle herded in a pen,
> Look on and shout,
> While two and twenty hirelings hack a ball about."

What we want is our boys to play games as recreations, not as means of living, so as to make them better equipped for the struggle of life which is before them.

I believe that if the children of our public schools were instructed in hygiene and temperance and if they were trained by a judicious combination of exercises and games such deplorable exhibitions of athletics as we see in so many of our great cities every week would in time cease to exist. I am confident that our young people—like the boys and girls in the primary schools of Japan who are taught every day the important lesson of civic duties—would learn from being educated together in the principles of hygiene and temperance and in the various methods of physical culture—apart from, and in addition to, their intellectual and mental development—what in later years and in changed circumstances will be of the utmost value—namely, what is the true aim and the proper object of corporate life. They would come to realise that the best kind of education is that which develops all the faculties of mind and body, which cultivates individuality, brings about self-reliance, and forms character, and which makes them feel that the highest type of civilisation is reached by that community in which they can point out the greatest number of examples of men and women who try in every way in their power to better the condition of their less favourably placed fellow-beings. Such an education will make our young people realise the truth of those beautiful lines—

> "So build we up the being that we are,
> Thus drinking in the soul of things,
> We shall be wise perforce; and while inspired
> By choice, and conscious that the will is free,
> Unswerving shall we move, as if impelled
> By strict necessity along the path
> Of order and of good. Whate'er we see,
> Whate'er we feel by agency direct
> Or indirect, shall tend to feed and nurse
> Our faculties, shall fix in calmer seats
> Of moral strength, and raise to loftier heights
> Of love divine, our intellectual soul."

CLEIDO-CRANIAL DYSOSTOSIS.

BY JOHN HILL ABRAM, M.D. LOND., F.R.C.P. LOND.,
PHYSICIAN TO THE ROYAL INFIRMARY, LIVERPOOL; LECTURER ON CLINICAL MEDICINE AT THE UNIVERSITY OF LIVERPOOL.

I HAVE had the opportunity of showing at the Liverpool Medical Institution a case of absence of the clavicles. Though not so rare as at one time believed, yet the condition is sufficiently uncommon to justify a record of a fresh case. Villaret and Francoz,[1] reporting a fresh series of four cases in 1905, gave a list of 28 observations up to date, and a further case was reported by Voisin and de Lépinay[2] in February of this year.

Professor A. M. Paterson and Dr. W. H. Broad have been good enough to give me an expert anatomical report on the boy, from which I give the leading points.

Clavicles.—Are almost completely absent on both sides. There is, however, a cartilaginous rudiment on each side, the left being the larger, and articulating with the sternum above the first costo-sternal articulation. The rudiment on the right side is much smaller and immobile. These rudiments and the first ribs are connected with the well-developed coracoid processes by strong fascial bands representing the costo-coracoid membranes. Expansion of the shoulders is accompanied by a tightening of these bands which causes engorgement of the superficial veins of the neck and prevents any abnormal approximation of the vertebral borders of the scapulæ.

Muscles.—The subclavius muscles apparently are wanting, but the platysma, sterno-mastoid, trapezius, deltoid, pectoralis major and minor muscles are well developed. The clavicular fibres of the muscles in question appear to arise from the fibrous membrane described above. The sterno-mastoids possess well-marked tendinous origins which arise close together from the front of the upper end of the sternum, they have an additional origin from the costo-coracoid membrane, and possibly also from the rudimentary clavicles. The trapezius is inserted into the spine of the scapula and into the coracoid process or the fibrous membrane over it; the deltoid muscle has a similar origin. There is an obvious separation of the anterior fibres of the two muscles.

Skull.—Glabello-occipital length, 182 millimetres; transverse diameter, 157 millimetres; horizontal circumference, 555 millimetres; vertical transverse arc, 355 millimetres; naso-alveolar length, 55 millimetres; inter-zygomatic width, 142 millimetres. The skull therefore is markedly brachycephalic, the cephalic index being 86·2. The facial index is 38·7. The fontanelles are persistent; the anterior fontanelle extends along the adjacent sutures backwards and laterally for an inch and forwards along the metopic suture to the root of the nose, forming a crucial groove on the surface of the head. The nasal bones are deficient, sloping downwards and outwards from the middle line and exposing the cartilaginous septum between the lateral cartilages. The mastoid processes are rudimentary and higher than usual in position. The ears are normal. The jaws are small; the palate is narrow and has rather a

[1] Nouvelle Iconographie de la Salpêtrière, 1905.
[2] Bulletin de la Société Médicale des Hôpitaux de Paris, 1905.

high arch. The lower jaw is feeble and of an infantile type, the ramus forming an acute angle with the body.

Trunk.—External occipital protruberance to tip of coccyx, 510 millimetres. Well-marked lordosis with slight dorsal scoliosis, convexity to the right. No obvious beading of ribs; seven costal cartilages articulate with the sternum on each side, the seventh pair at the junction of the mesosternum with the metasternum The sternum is abnormal. The manubrio-sternal junction is opposite the articulation of the third pair of costal cartilages; there is no episternal notch. The three parts of the sternum measure 55, 64, and 19 millimetres respectively = 138 millimetres.

Limbs.—Arms and legs are well nourished and fairly muscular and not disproportionate in size The humerus measures 213 millimetres, the ulna 201 millimetres, the femur 340 millimetres, and the tibia 295 millimetres. There is slight genu valgum on the left side. The terminal phalanges of the fingers and toes are rudimentary.

My colleague, Mr. E. J. M. Phillips, dental surgeon to the Royal Infirmary, reports on the teeth; the boy at the age of 16 years should have lost all the deciduous teeth and should possess 28 permanent teeth. Six temporary teeth are still present, and only 15 of the permanent set have erupted. The structure also of the teeth is poor; only three of the permanent teeth are sound.

FIG. 1. FIG. 2. FIG. 3.

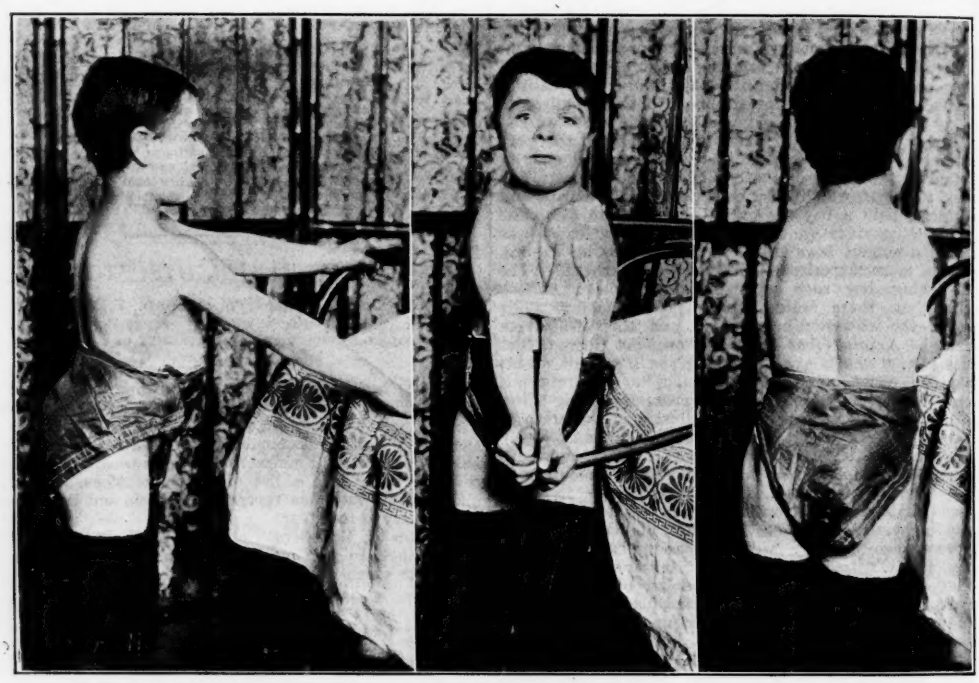


Fig. 1 shows the lordosis. In Fig. 2 the absence of the clavicles is well demonstrated. Fig. 3 shows slight dorsal scoliosis with convexity to the right. These figures all show abnormal mobility of the shoulder joints.

The lad is 16 years old. His height is four feet and half an inch, and his weight 4 stones 8 pounds (average height for age, five feet four and a half inches; weight, 8 stones 7 pounds). He has chubby, rosy cheeks. His gait is waddling (coxa vara). The genitals are puerile; there is some scanty hair on the pubes. On superficial examination one would not be struck by the absence of the clavicles—the shoulders are held well back and the chest is well rounded. I think Mr. J. Lewis Owen of Holyhead, who sent me the case, is to be congratulated on his acuteness in detecting the malformation. Finally, the boy is intelligent. He reached the fourth standard at school, and was a great favourite in the ward for his helpful ways. The reproductions of photographs illustrate well his appearance and the abnormal movements possible at the shoulder-joints. One shows the lad standing on his hands, and I might add that he can pull himself up chin high at the full stretch of his arms.

Dwarfs seem to fall into two marked groups, first those of perfectly proportionate but diminutive formation and, second, those due to mal-development or disease. My case belongs to the second group; he is an example of the class of case isolated as a distinct type by Pierre Marie and Sainton[3] in May, 1897, under the title of cleido-cranial dysostosis. The leading features are (1) aplasia more or less marked of the clavicles; (2) exaggerated development of the transverse diameter of the cranium; (3) delay in the ossification of the fontanelles; and (4) hereditary transmission. 1. The aplasia of the clavicles is well marked in this boy and, as most commonly seen, is bilateral. (A radiograph by Mr. C. Thurstan Holland showed a complete absence of any bony tissue.) 2 and 3. The head is typical, except that the palatal arch is not very high. As regards the fourth point, the heredity in my case does not fall into line. The mother, though short, is well formed and has normal clavicles; the boy's younger brothers, aged 14, 12, and 7 years respectively, and a sister, aged 10 years, have all well-formed clavicles. The father is a tall, well-formed man.

It is interesting to note that in achondroplasic dwarfs the clavicles and the bones of the cranium are not affected, and this has led M. Apert[4] to associate achondroplasia and cleido-cranial dysostosis as two variations, opposed and complementary, the first characterised by an insufficiency of the cartilaginous ossification, the second by an insufficiency of the membranous ossification. The origin of the clavicle in membrane is not generally admitted, however suggestive M. Apert's hypothesis may be. Gegenbaur has shown that the clavicle is a membrane bone like the cranium and may be connected with it by supraclavicular bones (sturgeon), or even arise directly from it (teleostei), and that in the acrania the clavicles are wanting. Bruch asserts that the clavicle is a membrane bone in man, but Gegenbaur holds it to be a mixed and Kölliker a cartilaginous bone. However this may be, Apert considers both conditions to be hereditary dystrophies the result neither of an accident of uterine development nor of fœtal disease, but in reality "definite and hereditary variations of the human type, specific and sudden, well recognised by zootechnists, which the Neo-Darwinian school term, with de Vries, mutations." Couvelaire considers that the causal element, whatever it may be, does not

[3] Ibid., 1897, 1898.
[4] Maladies Familiales, 1907.

really limit its action to certain parts of the bony skeleton. Cleido-cranial dysostosis is the expression of a general defect with predominance on a certain bone group. In my case, for example, the general growth is stunted, the sternum is abnormal, the terminal phalanges in both hands and feet are ill-formed, there are lordosis, coxa vara, and left genu valgum, and it affords support to Couvelaire's theory.

FIG. 4.

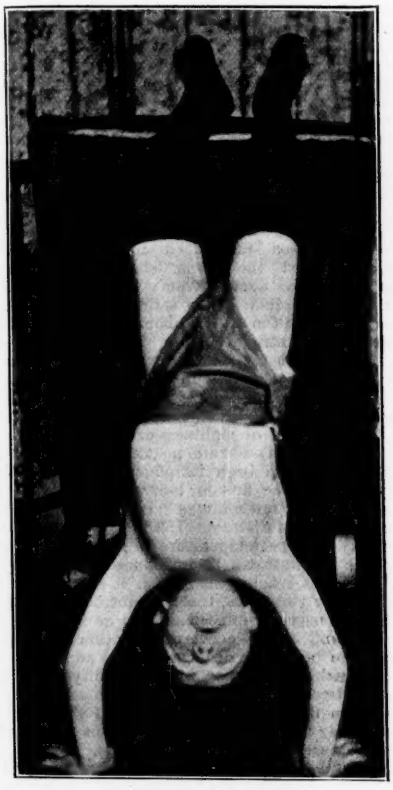


Fig. 4 shows the ability of the boy to stand on his hands.

As I have said, I have been unable to trace any hereditary element in my case. It is important to note, however, that the mother was married at 16 years of age, three months after a severe illness, the nature of which I do not know, which kept her six weeks in bed. She was 17 years of age at the boy's birth, ten months after marriage. The father is a temperate man and I think some weight may be attributed to the mother's illness in the causation of this boy's deformity, especially in view of the general defects and the early period of intra-uterine life at which the ossification of the clavicle begins.

Liverpool.

RAMSEY AND DISTRICT COTTAGE HOSPITAL.—A cottage hospital near Ramsey in the Isle of Man was opened on July 23rd. The portion of the building allotted to patients is of only one storey and consists of four wards, a nurse's room, a linen store, two bath-rooms, and two water-closets. Of the four wards two have one bed each and two have four beds and two cots each. A short corridor connects this portion with a two-storey block containing on the ground floor a surgery arranged and fitted as an operating-room, the matron's sitting-room, the kitchen, and various store-rooms. The mortuary is in a detached building not far from the laundry. The flooring of the wards is of polished teak, and elsewhere, except in the matron's sitting-room, the whole of the ground floor is of marble terrazzo. The requisite funds have been provided by the trustees of the Henry Bloom Noble estate.

NOTES ON A CASE OF CARCINOMA OF BOTH OVARIES.

BY M. P. KERRAWALLA, M D. BRUX., L.M. & S. BOMBAY, L.R.C.P. & S. EDIN., L.M. IREL.,
RESIDENT MEDICAL OFFICER TO THE BRIGHTON AND HOVE HOSPITAL FOR WOMEN.

THE patient, a married woman, aged 47 years, was admitted into the Brighton and Hove Hospital for Women on June 20th, 1907, for an abdominal tumour. She had had three children, the last being 20 years ago, and there had been no miscarriages. Her periods had been regular up to three years ago, since when they came on irregularly about once in every six months or so with scanty loss. Her mother had died from cancer of both breasts when 52 years of age, as also had her mother's two sisters. Her own sister was healthy, as also was her own daughter. The present complaint started about 18 months ago with the patient experiencing "dreadful pains" on walking or exertion, arising in the left iliac region and shooting round the back and down the legs as far as the knees. The pains were treated as rheumatic but without giving relief. For several months before admission the patient had developed a slightly yellowish offensive vaginal discharge, which, however, began to assume a pink colour for the last four months before admission to the hospital. She had been several times examined by a well-known London gynæcologist who, however, failed to find anything abnormal prior to the last examination nine weeks before admission, when he noted a hard lump to the right and back of the uterus, though no abdominal swelling was observed. For some time before admission the patient had suffered from a dragging pain during micturition. She had lost weight slightly. Three weeks before being admitted she had for the first time noticed an abdominal swelling, which was then only up to the level of the symphysis pubis. In about ten days more the swelling rose up to about two inches from the umbilicus.

On admission the patient, an intelligent woman, appeared to be well nourished. She had a slight offensive vaginal discharge and suffered from pain in the back and dragging pain on micturition. The abdominal tumour was globular, giving to the touch an impression of irregularity and being quite hard in the left half and fluid in the right. No free fluid could be detected in the peritoneal cavity. Per vaginam the cervix looked and felt healthy. The uterus was fairly mobile and moved with the tumour. A hard irregular lump was felt to the right and back of the uterus. Nothing abnormal could be detected in any other organ of the body.

At the operation the abdomen was opened in the middle line. A large ovarian cyst was discovered and was tapped in the usual manner, letting out about 40 ounces of what looked like ordinary ovarian fluid, which, however, got blood-stained towards the end. The cyst wall was adherent to the posterior surface of the uterus and the left broad ligament and had to be separated, leaving a raw, oozing surface. The inner surface of the cyst wall, especially towards the bottom of it, showed large warty growths. The pedicle was soft and friable; it was torn through in separating the cyst and was secured with difficulty. The greater part of the left broad ligament was tied off and removed. There was a little blood-stained free fluid in the peritoneal cavity which was removed. The uterus felt normal. The right ovary was enlarged to the size of a Tangerine orange and was hard and irregular with papillomatous growths on its surface. It was duly removed; no secondary deposits were discovered. The wound, which was closed in layers, healed by first intention. After the operation the discharge diminished greatly, as also did the pain on micturition. A fortnight afterwards the cexvix and the uterus felt normal and freely moveable per vaginam and the patient left the hospital greatly improved.

For the following pathological notes of the case I am indebted to Dr. F. G. Bushnell of the Sussex County Hospital, Brighton:—

The cyst consists of a papillomatous portion and a softer portion of about the consistence of brain matter. The former consists of a dense fibrous stroma which is everywhere invaded by columns of irregularly-shaped carcinoma cells. The soft portion is of exactly similar structure, except that the fibrous tissue is of recent formation. The epithelium is atypical and sometimes multinucleated. Section of the oviduct shows similarly the growth of carcinoma within the lumen. The surface of the cyst shows warty growths. Sections of the ovary of the

opposite (right) side show infiltration with rapidly growing columns of carcinoma cells but the tube is free from growth. A papillomatous growth on the surface is malignant—no corpora lutea are seen.

I have to thank Dr. R. Sanderson, senior surgeon to the hospital, for kindly permitting me to make use of the case.

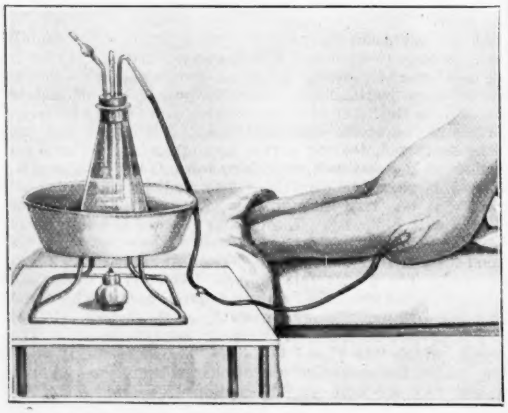
Brighton.

ON THE CONTINUOUS ADMINISTRATION OF FLUIDS BY THE RECTUM IN THE TREATMENT OF ACUTE GENERAL PERITONITIS.

BY B. G. A. MOYNIHAN, M.B., M.S. LOND., F.R.C.S. ENG.,
SURGEON TO THE LEEDS INFIRMARY.

IN the *Annals of Surgery*, 1906, Vol. XLIII., p. 231, Dr. Le Conte of Philadelphia, in discussing the treatment of diffuse septic peritonitis, drew attention to the method of introducing large quantities of fluid into the rectum which he had witnessed in the clinic of Dr. J. B. Murphy at Chicago. The results which Dr. Murphy and Dr. Le Conte had attained in the treatment of acute peritonitis due to appendicitis were so remarkable that I hastened to put the principles enunciated in that paper into practice. Certainly the most novel and in my judgment the most important of the several points mentioned therein had reference to the continuous administration of fluid by the rectum after operation. I have come to the conclusion, after a fairly large experience of it, that there are few recent therapeutic measures which are in value equal to this. I have up to the present time treated 19 consecutive cases of acute general peritonitis due to appendicitis with two deaths, and the recovery of several of these patients is, I believe, largely, if not solely, due to the continuous administration by the rectum of saline solution over a period of two to four days after the operation. But it is not only in such cases that I have found this method of value. In two recent cases of partial gastrectomy and in one case of complete gastrectomy the recovery of the patients was undoubtedly helped by this abundant supply of liquid to them. I propose to describe briefly the method of administration which I have found the most useful and shortly to add the details of a few cases in which I have adopted it.

The first point is concerned with the selection of a proper rectal tube. To find a perfectly satisfactory one is no easy matter. The patient during the administration of the infusion is generally propped up in bed, and if a short solid tube is used the rubber tube attached to it is apt to kink. I have used in all my recent cases a tube one foot in length



Apparatus for the continuous administration of fluids by the rectum.

and half an inch in diameter, made of pewter, with a slightly bulbous extremity which is introduced into the rectum. The tubes are supplied to me by Messrs. Allen and Hanburys. At the end and on all sides of this bulb holes are pierced so that fluid can easily pass through them and flatus can escape and can be seen bubbling through the supply-tank or funnel. If a single aperture only is present in the tube it is apt to be blocked by fæces. When there are many openings the rectum is equally distended above the sphincter and the obstruction of the flow of fluid by fæces does not occur. The tube is introduced about from two to three inches into the rectum, and at the anus it is bent sharply so as to lie easily on the bed. To its outer end a long rubber tube is attached, which leads to the source of supply at the bedside. The most convenient vessel to hold the saline solution is an "infusion flask" (Sahli's pattern). This is of the type of a Florence flask, but instead of being globular it is triangular in shape, having a large base. The flask holds from three to four pints and is closed at its neck by a rubber stopper, through which there are three openings; the one admits a glass-tube, which at one end reaches to the bottom of the flask and at the other is attached to the rubber-tube leading to the rectum; a second admits a thermometer; and a third a tube which acts as an inlet for air. The whole glass flask is immersed in a bath of hot water, beneath which a spirit lamp burns. This secures an equable temperature of the saline solution. The best temperature is from 100° to 102° F. If the fluid is hotter than this it is not retained well; its temperature is probably three or four degrees lower than that shown by the thermometer when the rectum is reached. When the tube has been introduced into the rectum and the flask attached the latter should be elevated so that its base is about from three to six inches higher than the rectum. The saline begins to flow and continues to flow at the rate of about a pint an hour. It is not desirable to introduce more than one and a half pints, or at the most two pints, during the first hour; subsequently a rate of one pint in the hour should be maintained. The rapidity of the flow is altering by raising or lowering the flask. It should be regulated by the patient's comfort. If a feeling of tightness or distress is caused the flow is too rapid. As a rule no uneasiness is caused till about five pints have been introduced. It may then be necessary to retard the flow for half an hour or an hour, or even to stop it for a few minutes. In only one case has less than five pints caused distress. If the rate of flow be regulated properly and the temperature of the fluid not altered from seven to ten pints can be introduced without any interruption. If flatus reaches the rectum it can escape by the tube. If, as rarely happens, the fluid introduced acts as an enema the tube may be replaced as soon as the bowels have acted. Care and almost constant attention on the part of the nurse are necessary to make the administration a success; a marked difference in the capacity of nurses will probably be discovered by all who try the method. In place of the infusion flask a funnel may be used which the nurse must keep filling from a jug. This is tedious and a variation in the temperature of the fluid is inevitable.

The largest quantity of fluid taken by any patient of mine during the first 24 hours was 16 pints; the largest quantity administered was 29 pints, extending over three days. These quantities were borne quite easily, without any distress whatever. The change in the appearance of a patient who is absorbing fluid so rapidly is very remarkable. If the case is one of acute general peritonitis the patient who looks livid, whose eyes are sunken, whose skin is moist and cold, whose mouth is so parched that his tongue can hardly move, begins in a few hours to look ruddy and "clean," his mouth is moist, his eyes are bright, and all his aspect is one of comfort and contentment. The pulse gains volume and improves steadily in character, urine is passed in large quantities, and the skin keeps moist. Not a few patients say that they feel very hot and some of them perspire freely. It is a question, perhaps, as to how far one is justified in carrying this treatment in patients whose kidneys are defective. In the case of partial gastrectomy to be mentioned presently I gave 16 pints of saline solution in 24 hours; this represents a large dose of sodium chloride. At the end of the 24 hours it was noticed that the patient's face looked fuller and rosier than it had ever done and a slight œdema of the lower eyelids developed. The injection was therefore discontinued for 12 hours to be again administered without any ill effect.

The chief use and the most remarkable achievements of this method are certainly in the treatment of acute general peritonitis, but I have found great help from it in the preparation and after-treatment of certain cases of gastric disease. Patients who suffer from pyloric obstruction in a marked degree are often wasted and shrivelled and parched. Such patients stand operation badly if the obstruction is

malignant. It has been my custom for two or three years in all such cases to perform gastro-enterostomy as speedily as possible. As soon as the lines of suture are complete I ask the anæsthetist to pass a long stomach tube; when this reaches the stomach I direct it through the new opening into the distal limb of the jejunum and then while I am stitching up the abdominal wall 50 ounces of peptonised milk, with one ounce of brandy, are given. The effect is most satisfactory. In one recent case of partial gastrectomy the patient was so ill and emaciated that I was doubtful if she could bear the removal of the pyloric growth. I therefore performed gastro-enterostomy, using the cardiac half of the stomach for the anastomosis. When this was complete the stomach tube was passed through into the jejunum and while I was engaged in removing the stomach a substantial meal of 50 ounces of peptonised milk was allowed to trickle into the jejunum. When this patient returned to bed the continuous rectal administration of saline fluid was begun and 16 pints were given. The first two pints contained glucose also. Eight weeks ago in another case I removed the whole stomach, attaching the jejunum to the œsophagus. Contrary to my usual practice I gave the patient no fluid at all by the mouth for 24 hours. During that time he received nine pints of fluid by the rectum and was perfectly comfortable and free from thirst. During the second period of 24 hours he absorbed six pints introduced into the rectum. His recovery was undoubtedly made more certain and less distressing by his free absorption of the fluid given by the rectum.

Dr. Murphy is of the opinion that in cases of acute peritonitis the fluid causes a reverse current of the lymph in the peritoneal lymphatics, "so that instead of absorption taking place from the peritoneal surface the mouth of the lymphatics pour out fluid, bathing the peritoneum with this free discharge," which escapes then by the tubes; that in fact the peritoneal cavity is flushed out by the fluid. I am doubtful if this view is correct. If an innocuous colouring matter be introduced with the saline solution, the fluid discharge from the abdominal wounds is never stained therewith.

We are, I think, entitled to say of this method that the continuous administration of fluids by the rectum is safe, that it is easily borne by the patients, that it effects a very remarkable change in their appearances and in their prospects of recovery after serious abdominal operations, and that the quantities which can be retained by the patient without discomfort do not throw a strain upon the kidneys which they find difficult to bear.

Leeds.

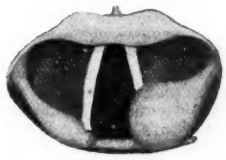
A NOTE ON HYPOPHARYNGOSCOPY.

BY HAROLD S. BARWELL, M.B. LOND., F.R.C.S. ENG.,
SURGEON FOR DISEASES OF THE THROAT, ST. GEORGE'S HOSPITAL; LARYNGOLOGIST, MOUNT VERNON HOSPITAL FOR CONSUMPTION; CONSULTING SURGEON FOR THROAT AND EAR DISEASES, CRIPPLES' HOME FOR GIRLS.

IN THE LANCET of May 25th, 1907, p. 1421, Dr. P. Tetens Hald of Copenhagen described under the above title a new method, devised by von Eicken[1] in Professor Killian's clinic, for the examination of the hypopharynx, or that part of the pharynx which lies below the aperture of the larynx. This region is especially difficult of examination, for the posterior surfaces of the arytenoids and cricoid plate lie in contact with the posterior pharyngeal wall and are not exposed to view in the laryngeal mirror. It is by no means easy to maintain Killian's tubes in position at this spot; they cause great discomfort unless a general anæsthetic be given, which would have been inadvisable in view of the exhausted condition of the patient whose case is related below, and their use is not without risk in cases of ulceration of this region. As this part of the pharynx is often the seat of important lesions and, especially in women, is frequently the site of an epithelioma, any promising method for its examination becomes of great importance. The following case in which von Eicken's method was successfully employed will, therefore, be of interest.

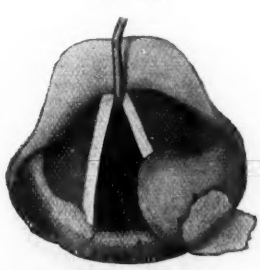
A woman, aged 39 years, was sent to me at Mount Vernon Hospital on June 6th, 1907, by Dr. F. T. Hebb. She complained of pain on swallowing, which began eight months before and grew steadily worse, so that she had eaten no solid food for three weeks and had hardly swallowed any thing, even fluids, for the last four days. She appeared very weak and emaciated, the voice was slightly hoarse, and a gland was just palpable on the left side of the thyroid cartilage. On laryngoscopic examination the left arytenoid was seen to be fixed, greatly swollen, and œdematous, the cords were normal, and no ulceration was visible, but a minute red line could be detected on the pharyngeal wall behind the swollen arytenoid, which suggested the upper end of an ulcer in the hypopharynx (see Fig. 1). Nothing more

FIG. 1.



definite could be seen and, for the reasons mentioned above, the use of Killian's tubes appeared inadvisable. I therefore decided to try von Eicken's method and after thorough cocainisation I passed a stout laryngeal probe, covered with moistened cotton-wool, below the cords and made forward traction on the cricoid. A large ulcer could now be seen to cover the back of the arytenoid and cricoid plate and to extend on to the pharynx; it had a greyish-white base and a red raised margin. Fig. 2 shows how the parts

FIG. 2.



were exposed by pulling forwards the larynx. Although the patient was nervous the manipulation caused her no inconvenience. The most urgent indication being to relieve the dysphagia I clipped out a small piece from the swollen arytenoid and admitted her to St. George's Hospital on the following day; the arytenoid swelling diminished much in size and the dysphagia was greatly relieved, so that she could eat the ordinary fish diet after 48 hours. Although the probable diagnosis was epithelioma and no history suggestive of syphilis could be obtained she was given mercury and potassium iodide for a fortnight, at the end of which time the ulceration had slightly extended and the gland in the neck was larger, though the arytenoid remained small and the wound made on it had healed. A small piece was now removed from the edge of the ulcer and under the microscope showed definite epithelioma.

In this case the extensive involvement of the pharynx contra-indicates operation; von Eicken's method has been of great use in showing at once the extent of the pharyngeal involvement and therefore in proving the case to be inoperable. It is also interesting to note how greatly the dysphagia was improved by relieving the tension of the œdematous arytenoid, for the patient was still taking solid food when she left the hospital four weeks after the little operation.

Wimpole-street, W.

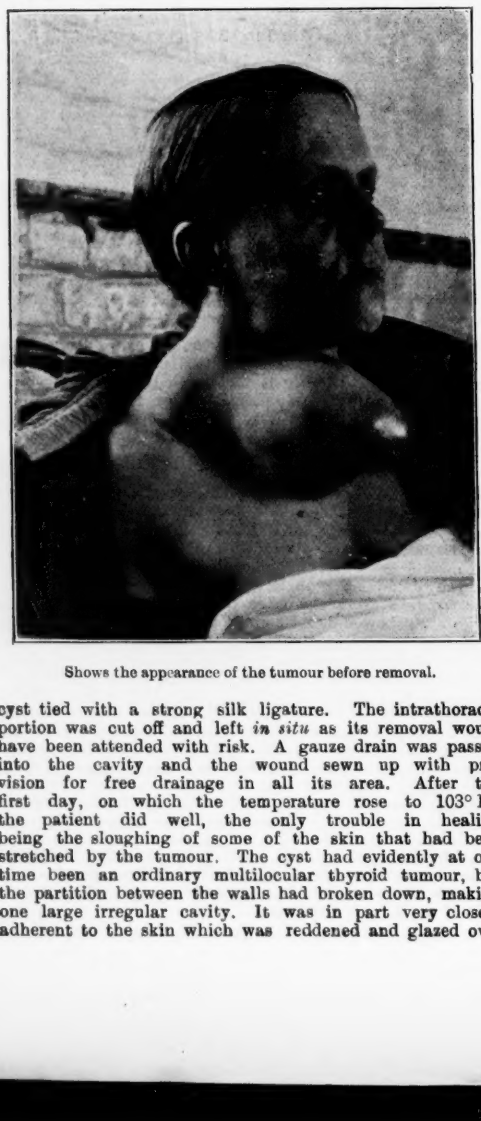
[1] Archiv für Laryngologie und Rhinologie, Band xix., Heft 2, 1907, p. 213.

CARDIFF INFIRMARY.—£333 have been received by the treasurer of the Cardiff Infirmary from persons who let the windows of their houses on the occasion of the recent visit of the King to the town.

NOTE ON A CASE OF THYROID TUMOUR.

BY W. GREENWOOD SUTCLIFFE, F.R.C.S. ENG.,
CONSULTING SURGEON TO THE THANET UNION INFIRMARY;
AND
A. F. M. POWELL, M.B., C.M. EDIN.,
MEDICAL OFFICER TO THE INFIRMARY.

THE patient, aged 42 years, was stone deaf, so that a history of the duration of the tumour was not obtainable; she had been in the infirmary a few weeks only and the tumour was giving rise to distinct pressure symptoms, there being frequent attacks of dyspnœa. Removal of the tumour was decided on and carried out on March 23rd, Dr. Powell administering the anæsthetic, chloroform, and Dr. Frank Nichol of Margate assisting Mr. Sutcliffe. The usual transverse incision was made over the most prominent part of the swelling and as more room would obviously be required a longitudinal incision was added in the line of the sterno-mastoid. The bulk of the cyst at once collapsed on incision and its connexions could then be made out; it extended well under the trapezius behind, under the maxilla above, and some considerable distance into the thorax below. It was densely adherent and its separation involved a difficult and tedious dissection. Starting from behind, the bulk of the collapsed cyst was dissected up and it was found that the carotid sheath was incorporated in its posterior wall. The jugular vein was tied low down and again high up, a large piece being removed bodily with the tumour; the carotid and the vagus were easily peeled off and the upper pole of the



Shows the appearance of the tumour before removal.

cyst tied with a strong silk ligature. The intrathoracic portion was cut off and left *in situ* as its removal would have been attended with risk. A gauze drain was passed into the cavity and the wound sewn up with provision for free drainage in all its area. After the first day, on which the temperature rose to 103° F., the patient did well, the only trouble in healing being the sloughing of some of the skin that had been stretched by the tumour. The cyst had evidently at one time been an ordinary multilocular thyroid tumour, but the partition between the walls had broken down, making one large irregular cavity. It was in part very closely adherent to the skin which was reddened and glazed over it, entirely negativing any idea of subcutaneous anæsthesia, but when collapsed was on the whole easily separable; the hardest part to remove was the rounded semi-solid upper angle, visible in the illustration as a prominence under the angle of the jaw and adherent internally to the pharyngeal muscles. At one stage of the operation there was some startling hæmorrhage from a large tributary vein low down in the neck, the arrest of which was momentarily delayed owing to temporary difficulties with respiration due no doubt to traction on the vagus, and the later stages of the operation were accompanied by a curious whistling sound from the thorax as if the pleura had been wounded, but it was probably only due to air flowing in and out of the thoracic portion of the collapsed cyst with the respiratory movements. The patient is now perfectly well and the scar is, as usual in thyroid cases, hardly visible.

Margate.

TUBERCULOSIS AMONG SCHOOL CHILDREN.[1]

BY T. N. KELYNACK, M.D. VICT., M.R.C.P. LOND.,
HONORARY PHYSICIAN AND MEDICAL ADVISER TO THE CHILDREN'S HOME AND ORPHANAGE; HONORARY PHYSICIAN TO THE MOUNT VERNON HOSPITAL FOR CONSUMPTION AND TO THE INFANTS' HOSPITAL, HAMPSTEAD.

IT is estimated that in this country more than one-third of all deaths between 15 and 35 years of age are due to pulmonary tuberculosis. This, at least in a large proportion of cases, is the death harvest of a tuberculous seed-sowing in infancy and childhood. It is well to remember that of the 1,200,000 new lives added annually to the population of the United Kingdom, one-fourth to one-third are born into homes where conditions exist strongly predisposing to tuberculosis. The valuable work of von Behring, Calmette, and others conclusively demonstrates that much of the tuberculosis met with in adult life is dependent on infection in infancy and childhood. Tuberculosis is a disease which commonly has a long latency. The development of active tuberculous lesions is often long deferred. Statistical evidence relating to the mortality of children from tuberculosis gives no reliable expression of the amount of the disease prevailing. Tuberculosis exacts heavy toll from child life, but the penalty of death is only exceptionally exacted. Pathological returns are of much directing value. Tuberculous lesions are rarely found in the bodies of infants dying under three months of age. After this, however, there is a progressive increase in frequency. D'Espine states that in children submitted to necropsy under one year tuberculosis occurs in from 7 to 8 per cent. Taking all cases on which post-mortem examinations are made under 15 years of age, Harbitz of Christiania finds tuberculous lesions in 42·5 per cent.; Hamburger and Sluka in Vienna, 40 per cent.; and Comby in Paris, 38·5 per cent.

At present the clinical evidence regarding the amount of tuberculosis among school-going children is miserably meagre. Medical examination, so-called, is manifestly oftentimes most hastily and imperfectly carried out. For the detection of tuberculosis, especially in its latent and incipient forms, time, patience, and skill are required. Many cases of pulmonary involvement offer exceptional difficulties in the detection. Every school should be equipped with a medical officer's consulting-room. It seems to be quite unusual at present to examine children in the recumbent position and careful investigation of the abdomen is rarely undertaken. Before placing any value on returns relating to "revealed" tuberculosis in children inquiry should be made as to the nature of the diagnostic methods relied on. According to statistics at present available for England and Scotland tuberculosis is said to be present in from less than 0·5 per cent. to over 6·0 per cent. of school-going children. We have no satisfactory information as to the prevalence of tuberculosis in rural schools. The amount of active tuberculous disease in children attending London schools appears to be small; but the case of the metropolis, in this as in many other matters, stands alone and must not be taken as any indication of the state of the country generally. What is really required is not merely a numerical statement as to the amount of recognised tubercle

[1] Abstract of a paper presented to the Second International Congress on School Hygiene, London, 1907.

among scholars in elementary schools but a reliable estimation of the amount of tuberculosis in all its forms and stages among the children of school-going ages in each district under an education authority. There is need also for careful inquiry into the amount of tuberculosis in those attending our higher and secondary schools.

Tuberculosis, more particularly of the lungs, exists among many teachers. During recent years I have examined a considerable number of such cases. In many involvement of the larynx occurs. Dr. J. Tatham has shown that the mortality from consumption among teachers is high in England and Wales. The same seems to be the case for Scotland and Ireland. The experience of Canada and the United States affirms the same. Many teachers certainly continue their work after they have become "open" cases. The presence of a consumptive teacher, placed, it may be, in an insanitary school, and in charge day after day for long periods at a time of debilitated and tuberculously disposed children, is so grave a risk that no education authority should be permitted to accept it. In Denmark every teacher on appointment to a public school is obliged to present a medical certificate not more than three months old, stating that he or she is not affected with any contagious form of tuberculosis of the lungs or larynx. If a teacher is found to be suffering from either of these forms of tuberculosis he or she may be dismissed with a pension of not less than two-thirds of the salary. Medical inspection is necessary for both teachers and scholars not merely to detect disease when well established but so that those predisposed may be recognised and suitably dealt with. Among upwards of 1800 children belonging to the various branches of the Children's Home and Orphanage, of which I am physician and medical adviser, we find that something like 25 per cent. are of consumptive parentage or are to be considered as specially predisposed to tuberculosis. The medical officer of schools will be able to render invaluable service by examining the upper air passages, tonsils, and other channels by which tuberculous infection occurs.

In considering the subject of tuberculosis among children of school age it is very necessary to break loose from all restricting conceptions and to view the school and its scholars from the broadest hygienic standpoint. It should be the duty of both medical officer and teacher to coöperate in defending the child as far as possible from all influences making for tuberculosis. I believe that most of the tuberculosis occurring among children of all ages is home-born and home-grown. Bearing upon this point the remarkable facts recently furnished me by Professor Emmett Holt deserve very serious study. Professor Holt states:—

> During the 19 months ending May 1st, 1907, 67 cases of pulmonary tuberculosis have been treated in our New York Babies' Hospital, 62 of these being children under two years and 15 under six months of age. The diagnosis rested upon finding bacilli in the sputum in 54 of the living cases; upon post-mortem examination in ten; and of the remaining three, one had tuberculous meningitis (tubercle bacilli were found in the fluid drawn by lumbar puncture), one reacted to tuberculin, and the third presented typical clinical symptoms of pulmonary tuberculosis. In only half of these cases was any consolidation of the lungs noted at the time the diagnosis was made, and in nine cases there were no pulmonary signs whatever, the infants having been admitted for other conditions than tuberculosis.

By adopting a special method for the collection of the sputum from these cases Professor Holt was able to demonstrate the presence of tubercle bacilli in no less than 80 per cent. of the cases, and "the possibility of infection at home was known to have existed in at least 40 per cent. of the children." It is very necessary, however, to insist that large numbers of our schools both in rural and urban districts are highly insanitary and rich in conditions predisposing to tuberculosis.

School sanatoriums are badly needed. Tuberculous and tuberculously disposed children should not be sent to a sanatorium dealing with consumptive adults. Consumptive children have special needs. Those in charge should be capable of carrying out the duties both of nurse and teacher. Many a woman as nurse-teacher should find an ideal vocation. When a school child is living in close association with consumptive parents or in an environment definitely tuberculous it might be well if some such method could be adopted as that advocated and so successfully carried out by the late Professor Grancher for Parisian children, whereby tuberculous little ones are removed from their infected and infecting homes and boarded out with healthy foster parents in the country at a comparatively low cost. The forest schools of Germany are accomplishing much and the interesting experiment of the London County Council in this direction will be watched with interest. In many crowded homes in both town and country large numbers of children are slowly dying from consumption and other forms of "open" tuberculosis, thereby perpetuating and multiplying the disease. For advanced and hopeless cases havens of refuge are urgently required. The subject is far-reaching and peculiarly perplexing, and surrounded by what seem to be almost insoluble difficulties. Only by coördination of knowledge and coöperation of effort can we hope to obtain directing principles and secure effective practice.

I believe progress might be considerably expedited if we could form an International Association for the Study, Prevention, and Treatment of Tuberculosis among Children.

Harley-street.

Reviews and Notices of Books.

Chemical Pathology. By H. GIDEON WELLS, Ph.D., M.D., Assistant Professor of Pathology, University of Chicago. London and Philadelphia: W. B. Saunders Company. 1907. Pp. 549. Price 15*s.* net.

ALTHOUGH pathology has long been regarded as one of the sure foundations of medicine, up to comparatively recent times by this term has been understood pathological anatomy, which represents the results of disease, not the successive steps—chemical, physical, and structural—which ultimately bring about those phenomena which are laid bare in the post-mortem room. Relatively seldom has the pathologist attacked his problem from the chemical point of view and by chemical methods. Biological chemistry has made great progress during the last 20 years and many fragments of information concerning the chemical changes that determine pathological phenomena have accumulated, but they are for the most part scattered through medical, chemical, physiological, and physical literature. The aim of Dr. Wells has been to collect these scattered fragments and to use them for a consideration of general pathology from the standpoint of chemical processes that occur in pathological conditions. The reader must not look for a description of chemical methods. For the benefit of those whose studies in organic and physiological chemistry date back some years an epitome is included of the more modern views concerning the chemistry of the proteid molecule, the composition of the animal cell, and the principles of physical chemistry, in so far as they apply to biological problems. The general consideration of enzymes is written with a similar object (pp. 61–103). The scope of treatment will be best grasped by stating the aspects from which the author sets forth his subject—viz., nature of enzymes and their actions, toxicity, intracellular enzymes, oxidising enzymes, lipase, intracellular proteases, and autolysis. Perhaps the fact is hardly realised that every cell is constantly accomplishing an enormous number of chemical reactions of varied nature at one and the same time—in the liver cell there may be going on a score or more of which we know something. The forces that bring about these chemical reactions reside, we say, in the enzymes, and possess attributes that were formerly conceded to the cell itself. The modern view but shifts the problem to certain constituents of the cell whose nature and manner of action are equally unknown. There are, however, certain essential differences between cells and enzymes, such as the susceptibility to poisons of enzymes and cells. Much new and suggestive work has recently been done on anti-enzymes; thus enzymes injected into animals lead to the appearance of substances in the serum of these animals that antagonise the action of enzymes. The principles involved are quite the same as in immunisation of animals against bacterial toxins or against foreign proteids. A fascinating chapter

is that on intracellular enzymes, which gives a glimpse into the inner working of cell activity by such agents as oxidases, catalase, alochydrase, tyrosinase, and proteases. This leads to a study of the defence of cells against their autolytic enzymes and the relation of autolysis to metabolism, normal and pathological. In the resolution stage of lobar pneumonia we have a striking example of autolysis. The dissolution and removal of the dense contents of the alveoli are due chiefly to the leucocytic enzymes, while the lung tissue itself is protected by the immunity of living cells to digestive enzymes.

To the chemistry of bacteria and their products about 25 pages are devoted, including their enzymes, ptomaines, toxins, Ehrlich's conception of the nature of toxins, endotoxins, poisonous proteids, and pigments. Very full consideration (pp. 136–56) is given to immunity against bacteria and their products and the relations of agglutination and precipitation. The chemical nature of antitoxins is discussed and so are immunity against bacterial cells, bactericidal serum, opsonins, anti-enzymes, agglutinins, and precipitins. But the production of substances possessing the essential features of true toxins is not limited to the bacterial cell, for we have both *phyto-toxins* and *zootoxins*, to which Chapter VIII. is devoted. This naturally leads to the consideration of *cytotoxins*, hæmolysis, or more correctly "*erythrocytolysis*," since through usage the term hæmolysis has been limited to solution of the red corpuscles. The remaining 300 pages deal with the following subjects: Inflammation—a condition in which it seems most of the features of the inflammatory reaction are brought about by chemical substances produced by alterations in the tissue constituents at the point of injury. This chapter includes a discussion on chemiotaxis and phagocytosis. Then follow the chemistry of diseases of the blood and such allied phenomena as hæmorrhage, hæmophilia, anæmias and specific anæmias, leukæmia, thrombosis, embolism, and infarction (pp. 238–75), and a full discussion of the important subject of "œdema" (pp. 276–306). The retrogressive changes, including necrosis, gangrene, rigor mortis, parenchymatous degeneration, fatty amyloid, hyaline colloid, and mucoid degenerations—and also glycogen in pathological processes—are then dealt with (pp. 307–63). The classical division of fatty changes in tissues—as "infiltration" and "degeneration," introduced by Virchow in 1847—must, it appears, be given up. An enormous amount of literature has accumulated on this subject. It seems, however, that the fat accumulated in the liver during fatty degeneration is not derived, as Virchow thought, through a transformation of cell proteids into fat, but rather is an infiltrated fat brought in the blood from the fat deposits of the body to the disintegrating organ. This applies more especially to the liver, myocardium, and pancreas, the degeneration having been caused in the cells so infiltrated by the action of poisons or other injurious influences. "In the kidney, spleen, and muscles an increase of fat seldom occurs from these causes, but the cells may show a marked fatty metamorphosis through the setting free of invisible intracellular fat by autolytic changes" (p. 339). As to amyloid, it is never deposited in the cells themselves; it is infiltrated in the form of a soluble precursor and is not manufactured in the organ where it is found. In so-called "hyaline degeneration" there is no chemical compound "*hyalin*." The subjects of calcification, concretions, and incrustations occupy about 30 pages, while about 20 pages are devoted to pathological pigmentation.

The chemistry of tumours has been but little investigated, though the indications point to the chemical processes in them as differing but little from those in normal cells of similar origin. No substance, the author holds, has yet been isolated from, or detected in, malignant growths that is peculiar to them and not found in normal cells, and still less has any substance been detected that accounts in any way either for the occurrence of tumours or for the effects that they produce. The cachexia of cancer is in no way different from the cachexia of other conditions. The most favourable results of experiments on immunity against cancer "have been entirely unconvincing." The later chapters deal with abnormalities in metabolism, including auto-intoxication, and perhaps from the point of view of the general practitioner these are amongst the most important in the book. As to uræmia, we are told that "the experiments of Bouchard and his school present such serious errors of technique and interpretation that they are now largely disregarded," a view with which most observers will agree. This condition is due probably to the more toxic antecedents of the nitrogenous constituents of the urine and not to the substances themselves that are eliminated in the urine.

We have not space to refer to an excellent review of the leading facts and theories of such subjects as eclampsia, acute yellow atrophy of the liver, acid intoxication, chemical diseases of ductless glands, uric acid metabolism, gout, and diabetes. Enough has been said to show the wide scope of the work, the vast range of subjects, as well as the masterly mustering of the "scattered fragments." The author deserves the best thanks of the profession, not only for his labours—his successful labours of compilation—but for the conspicuous fairness with which he sets forth in terse, concise language the views of the various authorities. We feel sure that this work will not only provide a great storehouse of garnered knowledge on a difficult yet fascinating subject, but will serve to stimulate research as well as to guide treatment. We wish it the success which it assuredly deserves.

Practical Sanitation: A Handbook for Sanitary Inspectors and Others Interested in Sanitation. By GEORGE REID, M.A., M.D. Aberd., D.P.H. Thirteenth edition. London: C. Griffin and Co., Limited. 1906. Pp. 352. Price 6*s*.

THE introduction glances at the progress of sanitary work since 1844, giving some interesting tables showing the effect of the altered conditions on the death-rate. The facts are marshalled and the best practice relating to health questions is brought up to date. There is a chapter on water-supply and distribution, with a welcome one on warming and ventilation, which last subject is much neglected and often but little understood; others deal with sewerage, drainage, and sewage disposal, sanitary and insanitary work and appliances, house construction, infection and disinfection. The last chapter relates to food and the causes and detection of diseased conditions in the same. There is also a voluminous and most useful appendix of the principal statutes affecting the inspector of nuisances summarised by Dr. J. Herbert H. Manley, barrister-at-law. As will be seen, a very wide range of subjects is covered, all more or less associated with the work of sanitary inspectors, and details are given with which they are supposed to be familiar. When it is remembered that these men are paid some 50*s*. per week it seems doubtful if the salary is enough to command efficiency. Dr. Reid has fallen into a few of the pitfalls associated with plumbers' work; in Fig. 51 the water line in the trap is too far from the connexion of the closet. The same defect is shown in an exaggerated degree in Fig. 52. The slop water-closets (Figs. 62 to 65) would seem most unsavoury arrangements.

In discussing the difficulty of connecting lead pipes with iron or stone-ware ones Dr. Reid seems to have overlooked the brass sleeve piece in common use, while the treadle system recommended for urinals in private houses has generally proved unsatisfactory. Recent practice has improved upon the suggested trapping for lavatory basins when fixed in series. As these are usually found in rooms with

impervious floors short wastes without traps can be used, delivering into a white glazed channel, which passes into a trap before going through the wall; the waste from this discharges over an external gully. Slop sinks, again, are almost obsolete and generally unnecessary when wash-down closets are used. It is a pity in the chapter on Sewage Disposal that some allusion has not been made to the late Dr. G. V. Poore's dry earth system or to the Liernur system which has lately been coming much to the front for low-level districts. Some of the examples given of insanitary work we hoped were now matters of ancient history. Throughout the author uses the poor plumber as a target for gentle sarcasm, though we venture to suggest that many of the faults here attributed to him were committed by his predecessors. Dr. Reid, however, evidently thinks well of the registered man.

The book contains a vast amount of conscientious work and the subject is ably and comprehensively dealt with. It has a good index and a number of illustrations.

LIBRARY TABLE.

The Book of the League of Mercy. Edited by the Rev. P. H. DITCHFIELD, M.A., F.S.A. London: Bemrose and Sons, Limited. 1907. Pp. 82. Price 5*s*. net.—The publication of an attractively printed *pot-pourri* of stories, verses, and pictures has recently become a recognised method of obtaining funds for various deserving charities; the League of Mercy's album (for that name alone describes it) lies before us and it should find a ready sale amongst the supporters of that excellent organisation over which the Prince and Princess of Wales preside. There are some 50 contributions in the volume and although the excellence of its intention should perhaps free it from the voice of criticism we venture to pick out Canon Beeching's strong little poem, "Fatherhood," and Mr. Herbert Railton's graceful sketch of the Lady Chapel in York Minster as the best out of several good contributions. Mr. Granville Fell has boldly challenged comparison with Blake's wonderful conception in rendering, "When the Morning Stars sang together," but has managed to escape plagiarism in his version. Mr. Austin Dobson contributes a dainty copy of introductory verses and there is considerable variety in the remainder of the book, which we commend to all friends of the League. It has the refreshing grace of a complete absence of advertisements and is admirably produced.

A Manual of Normal Histology and Organography. By CHARLES HILL, M.D., Assistant Professor of Histology and Embryology at the North-Western University Medical School, Chicago, &c. Illustrated. London and Philadelphia: W. B. Saunders Company. 1906. Pp. 463. Price 10*s*. net.—This book is intended for the instruction of elementary students and includes a description of the general anatomy of the various organs along with their histological features. "The fundamental facts in histology have therefore been presented in as clear and concise a manner as possible," while "the figures have been selected with considerable care and ..... are to be studied as critically as the text." We quote from the preface. We do not feel sure that the author really expects his elementary students to be critical of his text and illustrations but at least the reviewer may be excused for being so. Frankly, we do not think that the descriptions in the text are well adapted to the needs of beginners. Clearness and conciseness do not necessarily go together and here compression has in places been carried to a point where it renders the meaning obscure, in order to allow of the inclusion of matter which is quite unnecessary in a book of this kind, such as allusions to pathological conditions and to functions of organs quite apart from their structure. The illustrations are better than the text. Many of them are taken from other works and the selection has been wisely made on the whole. Allusions here and there to comparative anatomy are stimulating and we feel that the author might have written a good book if he had confined himself to histology and embryology, omitting details of gross anatomy and the extraneous matter above mentioned and allowing himself rather more space for adequate description of the remainder of his subject. A useful feature of the book is the attention devoted to the teeth, rendering it valuable to dental students. Some coloured diagrams of the development of the uro-genital system are also commendable. The printing and get-up of the book are good and the price is moderate in view of its profusion of figures.

The American Text-book of Prosthetic Dentistry. By Various Authors. Edited by C. R. TURNER. Third edition, revised and enlarged. With 916 illustrations. London: H. Kimpton. 1907. Pp. 896. Price 26*s*. net.—This volume illustrates in a striking manner the great advances that have been made during recent years in the teaching of prosthetic dentistry. Although the greater portion of the subject-matter is of such a technical character as to interest only those well acquainted with the mechanical side of the practice of dentistry there are, nevertheless, portions of the book well worthy of the attention of the medical practitioner. The first of these is the excellent chapter on the Human Dental Mechanism, its Structure, Functions, and Relations. The author of this section of the book is Mr. C. R. Turner, and he has succeeded in giving the reader a most lucid account of the variations in the shape of and the movements of the temporo-mandibular articulation, and an admirably illustrated description of the changes which take place in the jaws following on the loss of the teeth. Another section of the book of interest to the medical man is that dealing with the mechanical treatment of palatal defects. The book throughout is well illustrated and we have no hesitation in stating that it is far and away the most thorough work on prosthetic dentistry that has been published.

First Lines in Midwifery. By G. ERNEST HERMAN, M.B. Lond., F.R.C.P. Lond., Consulting Obstetric Physician to the London Hospital. With 83 illustrations. New edition. London, Paris, New York, and Melbourne: Cassell and Co. 1907. Pp. 222. Price 5*s*.—The number of times this little work has been reprinted since it first appeared in the year 1891 shows how great has been the demand for it and how well it has fulfilled the purpose for which it was written. In this new edition the most interesting change is a supplementary chapter containing the rules of the Central Midwives Board, with explanatory notes by the author interpolated. Midwives should find these of the greatest assistance and their introduction considerably increases the value of the book. Dr. Herman's clear and methodical style of writing is well known and this is one of the best books of its kind, if not the best. It forms a very useful introduction to the study of midwifery for students and a most excellent manual for midwives.

JOURNALS AND MAGAZINES.

The Liverpool Medico-Chirurgical Journal.—The July issue of this journal contains, as usual, many papers of interest. Only a few can be mentioned. A series of observations on cases of Pulmonary Syphilis are recorded in the papers of Dr. John Hay, Dr. R. J. M. Buchanan, and Dr. John Elliott; the diagnosis appears, however, somewhat doubtful in the two instances reported by the last writer. Dr. W. B. Warrington writes on Common Nervous Diseases, pointing out the frequency of disseminated sclerosis (contrary to the usual view as to its rarity), the comparatively favourable outlook in some cases of tabes dorsalis owing to the disease becoming stationary, the use of lumbar puncture and of trephining, and many other useful observations. Dr. William Alexander continues his valuable study of Epilepsy

and Dr. Leslie Roberts his articles on Seborrhœa. Dr. Ernest E. Glynn discusses the subject of Pulmonary Embolism and Thrombosis, holding that the latter is often the actual occurrence in cases of sudden death.

The Birmingham Medical Review.—The July number of this review contains the second Ingleby lecture by Dr. Thomas Wilson, dealing with Pelvic Inflammations in the Female, the present lecture being devoted to puerperal infections and their treatment and to gonococcal and chronic pelvic inflammations. This lecture was published in THE LANCET of July 6th. Dr. Smallwood Savage contributes a valuable paper on Vaginal Cæsarean Section as treatment for conditions in which there is undilatable or imperfectly dilated cervix. He gives notes of two cases in which he made use of this method, first suggested by Dührssen—viz., one of epithelioma of the cervix and one of placenta prævia. The paper deserves careful perusal.

The Medical Chronicle.—The principal article in the July number of this magazine is an abstract of a thesis by Dr. George G. Packe on Cancer of the Stomach, founded on a study of statistics derived from the post-mortem records of St. George's Hospital. The author concludes that primary cancer arises more frequently in the stomach than in any other internal organ, and that there has been a greater increase in the incidence of the malady on this organ than on any other part of the body. Syphilis and tuberculosis seem to be antagonistic to the development of this form of cancer or, at all events, rare concomitants or antecedents. Mr. E. D. Telford records a case of Acute Dilatation of the Stomach but throws no light upon the causation of the condition.

The Middlesex Hospital Journal.—A very entertaining article on Some Experiences in China, written by Mr. Dansey Smith of the Wesleyan Mission Hospital, Wuchow, appears in the July number of this journal. Anecdotes are given of the superstitions, medical and otherwise, prevalent among the Chinese, of their wonderful powers of recovery from injuries, and of the experiences of a European medical man among them. Mr. Somerville Hastings relates two cases in which trial was made of thiosinamin—one of keloid after burns in which no good effects were produced and one of chronic indurative ulceration of the leg in which the treatment was apparently beneficial.

MEDICINE AND THE LAW.

Three Criminal Cases: Richard Brinkley, Marie Leslie, and Charles Smith and May Churchill.

THREE criminal trials, taking place during the same week have recently attracted a considerable measure of public attention and have all presented medical features. Richard Brinkley, who was executed on Tuesday last, attempted to poison a man for whose removal he had a well-proved motive, by putting before him a bottle of stout into which he (the prisoner) introduced prussic acid after he had himself drunk from the bottle. Two persons against whom Brinkley had no design drank the stout instead of the man for whom it was intended, so that the latter remained alive to give evidence against his would-be murderer. A feature of note in this case was the ease with which the prisoner had obtained a considerable quantity of prussic acid. It was suggested that he had stolen it, or some of it, from a man described as a "specialist in the diseases of birds, who also treated dogs and cats." This "specialist" stated that he had on two occasions given Brinkley about 60 drops of prussic acid in response to a story that he wanted to poison a neighbour's dog, and that he had also left him alone in the room where the drug was kept in such circumstances that he might have helped himself to it. This points to a dangerous state of affairs capable of existing in spite of the precautions prescribed by the law with a view to control the trade in poisons. A similar point in connexion with Brinkley has been mentioned since his trial. It has been stated that 14 years ago an inquest was held upon a girl with the result that the jury found that she had committed suicide, the evidence showing that if she did so it was with arsenic taken by her from a box in Brinkley's room. In this box were found prussic acid, arsenic, strychnine, and chloroform, for which he accounted by a story that he was engaged upon chemical research in connexion with photography and electrical engineering. The acquisition of such a deadly armamentarium by a murderously minded individual affords a striking commentary upon the working of the laws regulating the sale of poisons. He also stated that he had given the girl shelter, after which she had cohabited with him. Without being uncharitable we may surmise that Brinkley was at that time an object of considerable suspicion to the police, but there seems to have been corroboration of his story that the deceased girl broke into the box which contained the poisons mentioned. He was evidently a man who had obtained some knowledge of poisons and it seems probable that he had studied them with a deliberate intention of using them criminally, for after he had denied this in cross-examination a piece of paper which had been found in his possession was put into his hand by counsel. It contained the following note: "Nitrate of silver with ordinary water will turn the water milky, but if it is put into distilled water the water undergoes no change." It was suggested by the prosecution that this information was intended to be used in order to administer poison to an unsuspecting victim. Brinkley's explanation was that the "specialist" already mentioned had supplied him with it as a test for distilled water as he (Brinkley) always drank distilled water at home, and he wished to be able to ascertain whether the druggist was really providing him with this somewhat unusual beverage for a working carpenter.

The second case referred to above, that of the woman Leslie, who was convicted of obtaining large sums of money by false pretences from exceedingly foolish dupes, is to be noted on account of the course adopted by Mr. Justice Darling, who expressed himself in accord with the suggestion of her counsel that her crime was that of a person not responsible for her actions. His lordship allowed a verdict of guilty to be returned in the ordinary way, and indeed there was no evidence before him to justify any other, and he then passed a sentence of five years' penal servitude, but in doing so he dwelt upon the character of her crime which was one absolutely certain to be discovered almost immediately. To this he added that he thought she needed to be kept under control for a considerable time but that he should leave the question of how long she was to be detained and of how she was to be treated to the Home Secretary. It seems certain that this woman was lacking in the normal powers of restraint which prevent the individual from doing an action immediately advantageous to himself on account of future greater disadvantages, and such a marked instance of this lack of inhibition comes very near insanity. We can understand, however, that the judge's expressions in regard to Marie Leslie may be considerably quoted, and strained in the process, in defence of other persons.

The third of the cases mentioned, that of Charles Smith and of the woman notorious as "Chicago May," was remarkable for the fact that the accused and their intended victim, Guerin, were all professional criminals, good examples of their class. The actual crime could hardly have been committed by persons in their "right mind," even though that mind was naturally prone to crime. The motive claimed by the prisoners themselves was the protection of the woman against an attack which they declared was intended against her by Guerin. Whether they really feared this, or whether Churchill planned Guerin's death in order to revenge herself upon him for leaving her in favour of another woman, to pursue a man and to shoot him in the open street with a revolver in circumstances which rendered their immediate capture almost a matter of certainty was an extraordinary course for experienced criminals to adopt, even when to some extent under the influence of alcohol. It has been stated that Churchill was a victim of the opium habit and, in any case, she and Smith, as well as Leslie and Brinkley, offer interesting subjects of study for the criminologist.

Water Used for Washing Motor-car of Medical Man.

In view of the fact that motor-cars are nowadays so much used by medical men the case of Harrogate Corporation *v.*

Mackay, decided recently, is one of considerable interest. A complaint was preferred by the corporation of Harrogate under the Waterworks Acts against the respondent, a medical man, to recover the sum of 10*s.*, being rent for water supplied by the appellants to and used by the respondent for a motor-car used by him for other than a domestic purpose—namely, for the purposes of his profession or business of a physician and surgeon—during the half-year ending Dec. 25th, 1906. The justices dismissed the complaint but stated a case. Upon the hearing of the said complaint the following facts were admitted or proved in evidence: 1. During the half-year ending Dec. 25th, 1906, the respondent kept a motor-car which he used in and for the purpose of his business or profession as a medical man, although he used it from time to time for purposes of pleasure. 2. The respondent during the said period regularly used water from the appellants' pipes for the purpose of washing his motor-car and for other purposes in connexion therewith. 3. The respondent kept his said motor-car in an outbuilding or premises adjoining his dwelling-house, the rateable value of the whole premises, according to the Poor-law valuation list, being £39, and the appellants had charged the respondent and the respondent had paid the appellants the water rate for water supplied for domestic purposes to the said premises the sum of £1 7*s.* 4*d.* for the half year ending Dec. 25th, 1906. 4. The appellants, purporting to act under Section 34 of the Harrogate Corporation (Waterworks Transfer) Act, 1897, had charged the respondent, in addition to the said rate of £1 7*s.* 4*d.* for water supplied for domestic purposes for the half year ending Dec. 25th, 1906, a sum of 10*s.* for water supplied and used during the same half year for other than domestic purposes, that is to say, for business purposes—namely, for washing his motor-car and for other purposes in connexion therewith. 5. The appellants had charged the respondent and the respondent had paid the appellants without complaint the like rate and rent for the half-years ending Dec. 25th, 1905, and June 24th, 1906. 6. The demand note delivered by the appellants to the respondent for the half-year ending Dec. 25th, 1906, was worded like the previous demand notes delivered to the respondent for the half-years ending Dec. 25th, 1905, and June 24th, 1906, and which he had paid without complaint. 7. The respondent did not give any notice that he objected to the charge or to pay such charge for water supplied to him in the way of his business or profession for the purpose of washing his motor-car and using water in connexion therewith until Dec. 11th, 1906, when he informed the appellants' rate collector that he objected to pay the charge. The appellants, in pursuance of Section 34 of the Harrogate Corporation (Waterworks Transfer) Act, 1897, where water is used for other than domestic purposes, make a charge in the case of a motor-car of £1 per annum, in the case of horses 5*s.* each per annum, and in the case of the washing of four-wheeled carriages 7*s.* 6*d.* each per annum, and of two-wheeled carriages 5*s.* each per annum. Under Section 30 of the same Act "the corporation shall not be bound to supply with water otherwise than by measure any building used by an occupier as a dwelling house whereof any part is used by the same occupier for any trade or manufacturing purposes for which water is required"; and Section 34 of the same Act enacts: "The corporation may supply water for other than domestic purposes on such terms and conditions as the corporation think fit, and may supply water by measure either for domestic or other purposes." Section 12 of the Waterworks Clauses Act, 1863, enacts: "A supply of water for domestic purposes shall not include a supply of water for cattle or for horses or for washing carriages where such horses or carriages are kept for sale or hire, or by a common carrier, or a supply for any trade, manufacture, or business, or for watering gardens, or for fountains, or for any ornamental purposes." For the appellants it was contended the water used by the respondent for the purpose of washing, &c., his motor-car was not used for domestic purposes; that as the motor-car was mainly used by the respondent in the practice of his profession it was used in a business and that water supplied for use on such motor-car was supplied for a business purpose within Section 12 of the Waterworks Clauses Act, 1863, and that the appellants were empowered by virtue of the Harrogate Corporation (Waterworks Transfer) Act, 1897, Section 34, to supply water for other than domestic purposes on such terms and conditions as they thought fit; and, further, that the appellants, having supplied water to the respondent and charged him a rent therefor, which rent the respondent had paid without complaint for two half years, there was an implied contract between the appellants and the respondent that if the appellants supplied water to the respondent and he used the water for washing, &c., his motor-car for the half year immediately following the half year ending June 24th, 1906, the respondent would pay the appellants the same rent that had been charged to, and paid by, him for the two previous half years. For the respondent it was contended that the supply of water for domestic purposes included the supply of water for a motor-car used by the respondent in the practice of his profession of a physician and surgeon; that the Waterworks Clauses Act, 1863, Section 12, applied only to a supply of water for horses or for washing carriages when such horses or carriages are kept for sale or hire or by a common carrier; that the respondent did not keep his motor-car for sale or hire, and that he was not a common carrier, that all the respondent wanted water for was for washing his motor-car, and did not want water for a business, and that the water-rate charged by the appellants to the respondent for water supplied to him for domestic purposes included the water supplied to, and used by, him for his motor-car. The justices were of opinion that the water used by the respondent for the said motor-car was not water used by him for a business. The Divisional Court held that the justices came to a right decision and dismissed the corporation's appeal.

The Duty of Post-mortem Delivery.

Dr. Wynn Westcott recently held an inquest upon the body of a woman who while in labour had died suddenly from rupture of the uterus before the child had been expelled. The deceased had previously borne 11 children and in none of these cases had she experienced a difficult labour. The post-mortem examination showed that the muscles of the uterus and of the heart had undergone extensive fatty degeneration; the uterus had ruptured from the cervix upwards. Her parturition was being assisted by a certified midwife who, in conformity with the regulations issued by the Central Midwives Board, sent for a medical practitioner as soon as the labour proved itself to be irregular. Upon the arrival of the medical man the woman was already dead. The evidence showed that there was a difference of opinion as to whether the unborn child was living when the medical man first saw the deceased woman: he believing that it also was dead did not proceed to deliver the child from the body of the dead mother. Such a case raises the question whether it is the duty of a medical practitioner to deliver a child whom he finds to be still alive within the uterus of a deceased woman. He may alternatively perform the true Cæsarean section and rapidly allow the infant's respiration to commence, or apply forceps and extract the child in the hope that it may still be living when its mouth and nose reach the open air. The advice usually given is that the decision as to what should be done, if anything, to rescue the child should be left to the husband, or, if he is not available, to his next friend. The husband of the deceased woman, having had all the circumstances of the case put before him, may desire that everything possible should be done and that with all speed in order that he may be granted living issue. Certain legal technicalities arise in this connexion. Thus, there are occasions when a child in order to benefit must be born during the continuance of the wedlock of the parents, that is, for example, during the lifetime of the mother; further, it has been disputed whether a child extracted by the Cæsarean section is really "born" at all; it might, indeed, be said that a living child within a dead woman must already have commenced its separate existence and hence was a person for legal purposes. The question of the necessity of Christian baptism in certain of these contingencies must not be overlooked if the parents are known to hold theological views on this matter.

VACCINATION FEES IN CARDIFF UNION.—The board of guardians of the Cardiff Union has decided to reduce the vaccination fees in Barry and Penarth, both urban districts, to 3*s.* 6*d.*, the minimum sum allowable. In the more rural districts the fees are reduced to 4*s.* and in the town of Cardiff the minimum fee of 2*s.* 6*d* is to be paid. The sub-committee, which first considered the question, suggested a fee of 3*s.* for Cardiff but the full board out-voted the proposal by a large majority.

THE

BRITISH MEDICAL ASSOCIATION.

MEETING AT EXETER.

THE SECTIONS.

MEDICINE.

FRIDAY, AUGUST 2ND.

Discussion on Rheumatoid Arthritis and the Morbid Conditions which Simulate it, with Special Reference to Pathology and Treatment.

Dr. ARTHUR P. LUFF (London), in opening the discussion, pointed out that the term "rheumatoid arthritis" was objectionable, as suggesting a causal connexion with rheumatism. If, however, it was employed to mean an arthritis somewhat resembling some forms of rheumatism, the term might be retained, although the name "arthritis deformans" was less open to objection, but he suggested that in that discussion the term "rheumatoid arthritis" should be retained owing to its long usage. In opposition to those who regarded rheumatoid arthritis as a very complex disorder with many factors concerned in its etiology he held that although there were several infective diseases of the joints which somewhat resembled it, yet that rheumatoid arthritis was a distinct clinical entity. It was a constitutional disease, not a local one, the affection of the joints being only a part of the morbid process. He regarded it as a disease due to micro-organisms gaining access to the blood in the majority of cases probably through some chronic catarrh of the alimentary tract, although the invasion might occur from the nose, pharynx, or air tubes. They found their way to the joints where they produced inflammatory changes resulting in ulceration, erosion, destruction, and, coincidently as a rule, in hypertrophy also. During their growth toxins were produced and discharged into the circulation, giving rise to the nervous symptoms of the disease and producing the local sweatings and pigmentation associated with it. That it was an infective disease was shown by the febrile disturbance which always accompanied the early stages of the disease, by the rapidity of the pulse, the local sweatings, and by the progressive involvement of many joints. In its early stages it might very closely simulate subacute rheumatic fever but it might be distinguished from it by not reacting to treatment with salicylates. It usually commenced in one joint and then rapidly spread to others. Shortly after its commencement it was always polyarticular. He was of opinion that the so-called forms of monarticular rheumatoid arthritis were always traumatic in origin. It would be better to restrict to these forms the name "osteo-arthritis." Rheumatoid arthritis occurred in two forms—acute and chronic—both being due to the same infective cause. It was commoner in females than males. In the acute form it was generally met with in earlier adult life. The chronic form might be a later stage of the acute disease, or, as was more frequently the case, it might be chronic from the first. It occurred in middle life and in females, especially about the climacteric period. Comparatively slight injuries of a joint, especially of a small joint, might lead to rheumatoid arthritis. The injuries were frequently the outcome of excessive work and strain, especially in elderly and enfeebled persons with a diminished power of resistance. In the acute form the synovial membranes were primarily and mainly affected, while the ligaments were softened and infiltrated, presenting the well-known spindle-shaped enlargements of the joints. The cartilages were damaged secondarily, and it was not until the disease had assumed the chronic form that the signs indicative of destruction of cartilage became evident, accompanied with cartilaginous and osteophytic outgrowths. Cases of Heberden's nodes represented the mildest degree of the disease. They were due to a very chronic form of rheumatoid arthritis. This type was more commonly met with in women than in men, and usually at or after the middle period of life. The nodules were due to enlargement of the ends of the bones, which were frequently covered by a pouch of the projecting synovial membrane, acting somewhat as a bursa. In the great majority of cases rheumatoid arthritis was a primary disease, but it was probable that in a small number of cases an antecedent attack of rheumatic fever, or of some form of septic arthritis, such as gonorrhœal arthritis, or even an acute attack of gout, might have left the joints in such a vulnerable condition that they might subsequently become the seat of true rheumatoid arthritis. Dr. Luff protested against the tendency to invoke uric acid as a cause of the joint condition in this disease. Any debilitating condition might predispose to this disease, and especially of late years he had seen many cases of rheumatoid arthritis which had followed repeated attacks of influenza. Rheumatoid arthritis, if left untreated, tended to spread from joint to joint and produced progressive destruction of the joint tissues. For the successful treatment of this disease it was essential that the treatment should be commenced while the disease was in its early stages; hence the importance of an early recognition of the malady and of its distinction from gout and rheumatism. The treatment must be persevered in for a long period of time, generally a year or two, and during the treatment everything possible must be done to improve the general condition of the patient. If rheumatoid arthritis was seen and recognised early in the acute stage it was curable. In the later chronic stages it was possible to arrest the disease, to remove the pain, and to secure greater movement of the joints, but not to restore them to their normal state. The not infrequent mistake of diagnosing rheumatoid arthritis as gout and the consequent placing of the patient on a restricted and spare diet had undoubtedly led to the development of severe and incurable forms of the disease. It was essentially a disease that required good and nutritious feeding. The diet should be as liberal and as good as the patient could digest and animal food should be partaken of freely, though not to the exclusion of vegetables. A moderate quantity of wine or stout should be taken with lunch and dinner. The drugs recommended by Dr. Luff were guaiacol and potassium iodide. He had employed guaiacol in over 3000 cases and as the result of his experience he did not hesitate to say that, if administered in sufficient quantities and for a sufficiently long period, it was capable in the great majority of cases of arresting the disease, of diminishing the size of the joints, of permitting increased movements, and of relieving pain. It was useful in both the subacute and chronic forms of rheumatoid arthritis. He believed that the guaiacol exercised an inhibiting effect upon the micro-organisms responsible for the production of rheumatoid arthritis. Guaiacol should be given in cachets in the form of the carbonate. At first from five to ten grains of the carbonate of guaiacol should be given three times a day and the dose should be increased by one to two grains each week until from 15 to 20 grains were being taken in each dose. It was essential that this treatment should be continued for at least 12 months. The beneficial effects of the guaiacol were very much increased by administering at the same time a mixture containing potassium iodide, the depressing effect of the iodide being counteracted by its combination with tonics. This treatment yielded much better results than prolonged treatment with arsenic and iron. If the treatment was commenced in the comparatively early stages of the disease then recovery with very little deformity might result; but even if after arrest of the disease much deformity resulted, very considerable mobility of the joints might be promoted by baths, superheated air, massage, and passive movements. Douche massage was the most effective form of treatment with hot water, and perhaps next to that ranked peat baths and brine baths. Electric light baths, in which the affected joints were bathed in the heat and light rays reflected from a number of incandescent electric lamps, were also beneficial in many cases. Regulated movements and massage were of great use in overcoming the stiffening and fixation of the joints and the muscular wasting in their vicinity. In regard to climate, dry heat benefited cases of rheumatoid arthritis whereas damp cold increased the disease. Seaside resorts were not suitable for most cases. As a winter resort there was no better climate than that of Egypt.

Dr. T. S. P. STRANGEWAYS (Cambridge) stated that he was engaged at Cambridge on a research into the pathology and etiology of the disease, which he did not regard as a clinical entity but as a type. He regarded rheumatoid arthritis as a heap to which any joint disease was thrown which was not understood. He expressed himself as emphatically disagreeing with most of Dr. Luff's statements. A study of the literature and of the clinical notes of cases was practically valueless owing to the various different diseases of joints recorded under this heading.

True advance could only be achieved by a systematic study of the morbid anatomy and histology of cases of this type. He indicated the general outlines of the research upon which he was engaged, and briefly referred to some of his results. He differed from Dr. Luff in regard to the relationship of gout to rheumatoid arthritis since in some cases examined microscopically he had found urates in the tissues, and a study of the metabolism of a number of cases had shown that the output of urates was altered. In regard to the first joint attacked, in the female the hands were first involved in 27 per cent. of the cases, in the male in only 7 per cent. In his opinion examination by the x rays afforded the most valuable information and he differentiated three forms of the joint condition found in these cases: first, an infective form in which no changes were observed by the x rays; secondly, an atrophic form which was probably a chronic infective variety; and thirdly, a hypertrophic form in which there was often a deposit of urates.

The PRESIDENT of the Association (Dr. HENRY DAVY) said that there was a misconception about the climate of Devonshire in regard to this disease, which, so far as his experience was concerned, was rare in that county. He attributed the bad reputation which it enjoyed in this respect to the slight gout which was formerly common as a result of the lead poisoning which arose from the manner in which the cider so largely used there was prepared before the present improvement in the methods of preparation. In his opinion, early gout was frequently diagnosed as rheumatoid arthritis. He strongly supported Dr. Strangeways's view that various joint conditions clinically different were included under the general term of rheumatoid arthritis. In illustration, he alluded to the condition of tuberculous rheumatism described by French observers in association with tuberculous disease and maintained that the existing confusion would continue until all these conditions were separated. In regard to the infective origin of the condition he advised that they should not too hurriedly assume such an origin for all cases.

Professor T. MCCRAE (Baltimore) agreed with Dr. Luff in regarding rheumatoid arthritis as a more or less distinct clinical entity and was of opinion that the different types described by Dr. Strangeways were different forms or stages of the same disease, and stated that careful examination of the joints in some cases would reveal different forms of the condition in the same patient. He pointed out the similarity to be observed in the anatomical features with those produced by other infective processes of joints, such as gonococcal arthritis and the typhoid spine in spite of their clinical differences. He agreed with Dr. Luff that rheumatic fever and rheumatoid arthritis were entirely different diseases and emphasised the importance of diagnosis, since he regarded it as a reproach to medicine if cases of rheumatoid arthritis were treated for a long time as rheumatism. He maintained that rheumatoid arthritis involving the spine was much more common than was generally recognised, especially a local form involving three or four lumbar vertebræ, which was responsible for many cases of pain in the back and sciatica. He insisted on the importance of the x rays in diagnosis and in regard to treatment advised that the case should be as carefully dieted and treated as one of pulmonary tuberculosis and on similar lines. A scheme should be prepared for the patient to follow, the diet being liberal and nourishment being given between meals if necessary. Energetic local treatment was important and he emphasised the value of the application of the Bier methods for relief of pain both in acute and chronic forms. It was important to make the patients take a personal interest in the treatment of their joints, and by this means considerable improvement had been obtained in some of the poorer patients at Baltimore. He differed from Dr. Strangeways regarding the value of the study of the morbid anatomy and histology of the disease after death, since the necropsy was usually so very remote from the origin of the disease. More useful results were likely to be obtained from the investigation of cases operated upon early in the course of the disease, which was now sometimes done in America. In regard to the mon-articular cases careful examination would usually reveal slight lesions in other joints.

Dr. W. R. GORE (Llandrindod Wells) regarded the origin of the condition as undoubtedly bacterial, probably due to an infection from the gastro-intestinal canal. There was almost always some gastro-intestinal disorder in these cases, and it would seem as if such a condition might lead to gout in one person and to rheumatoid arthritis in another. In regard to diagnosis, the greatest difficulty arose in distinguishing between early gout and rheumatoid arthritis. In his opinion the uric acid craze had done much harm in connexion with this disease. In regard to treatment, this should be systematic and carried out for a long time. It was important to improve digestion and to give nutritious foods; fats and proteids should be given abundantly but fermentable foods should be avoided. The value of treatment at Llandrindod was chiefly due to its beneficial effect upon the digestive processes. In regard to local treatment, electric-light baths and massage were useful. It was also of great assistance to promote sweating, since it was probable that arthritic toxins were excreted by the sweat. He confirmed the views expressed as to the usefulness of Bier's method.

Mr. W. J. MIDELTON (Bournemouth) called attention to the value of the method recommended by Dr. P. W. Latham of counter-irritation to the spine. Mr. Midelton did not believe that the disease was due to a specific micro-organism but thought that pyogenic organisms were at work in all cases and that the condition was very largely a chronic septicæmia. He was surprised that no speaker in that discussion had referred to the effects of the disease upon the central nervous system. He would prefer to call it chronic cerebro-spinal toxæmia. He agreed with Professor McCrae in regard to the value of treatment on the lines adopted in cases of tuberculous disease.

Dr. W. J. TYSON (Folkestone) was of opinion that a great deal might be effected in regard to the prevention of this disease by the regular and systematic daily exercise of all the joints and by careful attention to the ventilation of rooms. He had seen the disease stamped out from a row of cottages where it was previously rife by the cementing of the floors. He was convinced that much might be done in early cases by simple measures.

Dr. PRESTON KING (Bath) had no doubt that there was a real connexion between rheumatoid arthritis and gout, and thought that there were many cases which could justly be called by the old name of "rheumatic gout." It was difficult in some cases to see any clinical differences between cases following gonorrhœal infections and those from other causes such as from suppuration about the teeth or from abscesses elsewhere. He referred to the confusion resulting from the personal factor in observing and recording cases of the disease and looked forward with hopefulness to the results of Dr. Strangeways's work, from the elimination of that factor.

Dr. J. O. SYMES (Bristol) said that rheumatoid arthritis included two distinct varieties of joint condition, one in which the fibrous tissues were alone involved, to which the name of fibro-arthritis was applied, and the other in which the bony structures suffered, called osteo-arthritis, and in his opinion the condition of fibro-arthritis did not pass on into that of osteo-arthritis. In both kinds there were two chief exciting causes—viz., bacterial infection and some metabolic change possibly leading to an auto-intoxication. In regard to the bacteriology, although he had repeatedly looked for it he had never found Bannatyne's bacillus but had found various cocci. He agreed with Dr. King that rheumatoid arthritis might arise from gout. In distinguishing between subacute rheumatism and rheumatoid arthritis he pointed out that in the latter condition there were often a rapid pulse, cold sweats, a low temperature, some pigmentation, and an exaggeration of the reflexes, while the joint affection was often symmetrical in its distribution, and on cytological examination of the fluid withdrawn from the joint the cells were found to be chiefly of the mononuclear type, whereas in rheumatism the polymorphonuclear forms were in excess.

Dr. MICHAEL G. FOSTER (London and San Remo) discussed the influence of climate on the treatment of this disease. He regarded it as of value in the relief of pain and in the improvement of general nutrition. It was impossible to forecast the effects of climate, but within limits the warmer the place the better. In his experience the effect of the Riviera on these cases was by virtue of its sunshine. He agreed with Professor McCrae in regard to treatment of these patients like those with tuberculosis. He recommended a full diet with stout to drink. Drugs were useless except for the relief of pain. Electric baths, passive movements, and massage were useful.

Dr. D. B. LEES (London) was of opinion that there was great need of further analysis or definition, but he thought that after separating all cases definitely due to gout and

rheumatism and cases in which both had a share, all cases due to syphilis or tuberculosis, all those of gonorrhœal origin, and the condition of tabetic arthropathy, there was still a residuum of cases left which might be called rheumatoid arthritis. He alluded to the cases in children described by Dr. G. F. Still in which, in addition to the joint changes, there was also enlargement of the spleen and of the lymphatic glands—a condition which, he thought, must be microbic in origin. Another class of case was that occurring in young adults, chiefly women, with an onset like that of true rheumatism, and some of these cases he believed to be distinctly rheumatic. He recommended doses of salicylates in these cases of what might be regarded as of heroic magnitude—viz., up to as much as 300 to 400 grains a day given in ten doses. He began with small doses, increasing until toxic symptoms developed, then withholding the drug for three or four doses and beginning again with half the doses and again increasing rapidly. With each dose twice as much bicarbonate of sodium was given as salicylate. In regard to the chronic type with enlargement of many joints, he was of opinion that one cause in women was the limitation of the water taken into too small an amount daily.

Dr. F. J. POYNTON (London) stated that, working with Dr. A. Payne, he had isolated a micrococcus from a joint and by it produced a rheumatoid arthritis in rabbits. Working with the rheumatococcus he had also found that it could produce a periarthritis and an osteo-arthritis, as well as a synovitis. He differed from Professor McCrae and thought that rheumatoid arthritis could be of rheumatic origin. He also believed in the old view as to some cases being of gouty origin and thought that the gouty inheritance afforded a good soil for the exciting agent of rheumatoid arthritis.

Dr. A. W. SIKES (London) agreed with Dr. Poynton as regards the relationship which might exist between these cases and rheumatism and gout. He referred to the four groups of causes usually admitted—viz., metabolic disturbances, gastro-intestinal derangements, nerve conditions, and bacteria. He thought physical exercises were of value and had seen cases of slight rheumatoid arthritis of the knees improved by bicycling.

Dr. E. L. FOX (Plymouth) disagreed with Dr. Davy in regard to the rarity of the disease in Devonshire, for he had seen most severe cases of it in Plymouth. He regarded drugs as practically useless.

Mr. J. W. DRAPER (Huddersfield) agreed with Dr. Tyson as to the bad effect of damp in houses and the value of concreting the floor.

Mr. V. T. GREENYER (Hove) called attention to the value of opening the joints and washing them out.

Dr. W. ODELL (Torquay) had seen good results from the salicylates in certain stages. He believed in the use of guaiacol and hypophosphites and had seen good results from the administration of tablets of ichthyol.

Mr. T. MORRELL THOMAS (Newport, Mon.) recommended the breaking down of adhesions under ether.

The PRESIDENT of the section, Dr. W. GORDON (Exeter), expressed his gratification at the valuable nature of the discussion. He confirmed the value of guaiacol carbonate in the treatment of the disease.

Dr. LUFF, in reply, confirmed the remarks of Dr. Davy in regard to the importance of early diagnosis. He differed from Dr. Lees in regarding the reaction of any case to salicylates as definitely establishing it as rheumatism, since in his opinion true rheumatoid arthritis was not benefited by them. The use of Bier's method was of value only when a few joints were affected. He had found Dr. Latham's method of value only in cases of spinal arthropathies.

SURGERY.

THURSDAY, AUGUST 1ST.

Mr. J. BLAND-SUTTON (London) opened a discussion on

The Indications for Cholecystectomy

by saying that it was now fully decided that bile was purely excrementitious. The liver was an organic filter for the blood of the portal vein, removing from it not only toxins but also microbes which had been absorbed from the gastro-intestinal tract. Observation failed to show that in a healthy gall-bladder any chemical change took place in the bile, except an alteration of colour and a slight admixture of mucus. Observation and experiment taught them that gall-stones were the result of pathological changes of the walls of the bile-ducts and gall-bladder. It was formerly thought that these changes were due to direct infection from the duodenum through the common bile-duct, but it was now known that the worst forms of cholelithiasis, cholangitis, and cholecystitis were due to toxins and germs which had been excreted by the liver with the bile. It must also be recognised that anything that caused stasis of the bile favoured the formation of gall-stones and also it was important to note that in 75 per cent. of all cases of gall-stones they had originated in the gall-bladder. The functions of the gall-bladder were of very little importance. Anatomy, human and comparative, taught them that absence of the gall-bladder entailed no disadvantage. Observations on the dead showed that disease destroyed it very often without causing any inconvenience to the individual. Pathological observations and the experience of surgeons were equally eloquent in proclaiming the dangers and catastrophes accompanying many diseased conditions of the gall-bladder which might be obviated by a timely operation, and the accumulated experience of many surgeons showed that the most satisfactory consequences were obtained by treating the gall-bladder, when it required surgical intervention, in the summary fashion in which they now dealt with the vermiform appendix. The morbid conditions of the gall-bladder which were best suited for cholecystectomy were: (1) Injury to the gall-bladder; (2) calculous cholecystitis; (3) acute (non-calculous) cholecystitis; (4) perforating ulcers of the gall-bladder; (5) mucocele (hydrops vesicæ felleæ); (6) chronic cholecystitis (empyema); (7) biliary fistula; and (8) primary cancer, sarcoma, and endothelioma of the gall-bladder. In a case of injury removal was much the best operation; the organ was damaged and removal was easy. When calculi were present in the gall-bladder it was certain that the mucous membrane of the gall-bladder was diseased; and as most calculi came from mucous catarrh of the bladder, if the gall-bladder was left there was a chance of recurrence of the disease, while if it be removed recurrence could not occur. Again, in some cases of gall-stones in the gall-bladder the cystic duct became obliterated and in such a case it was obvious that removal must be the correct treatment. In all cases of removal of the gall-bladder it was necessary to be absolutely certain that the common bile-duct was pervious. In acute non-calculous cholecystitis it was equally advisable to remove the gall-bladder, for the damage to the mucous membrane could not be completely recovered from, just as in an acute appendicitis the appendix must be removed. Perforating ulcers of the gall-bladder could be divided into those occurring (1) in calculous cholecystitis, (2) in the process of the formation of a fistula, and (3) in cholecystitis without calculi; these were the simple forms, but it might also occur from typhoid ulceration and in the final stage of malignant disease of the gall-bladder or bile-ducts. The signs of perforation were those usually met with in perforation of hollow abdominal viscera and in most cases it was diagnosed as due to a perforating appendicitis in an unusual situation. When perforation had occurred it was better to remove at once the gall-bladder and not to make any attempt at closing the perforation. A mucocele of the gall-bladder was often called hydrops; in this condition the cystic duct was blocked and the bladder might be distended to almost any size. The mucus might be thin or it might be thick; in the latter case if gall-stones were present they might be described as "in aspic." Sometimes a rod-like stone occupied the centre of the gall-bladder and around it was the mucus. Excision gave good results in mucoceles. Sometimes the patient might be perfectly well in a fortnight. When cholecystitis became chronic pus collected and an "empyema" was formed, or a mucocele might become infected. In these cases of abscess of the gall-bladder complete immediate removal was far better than drainage. When suppuration occurred in other similar viscera removal was now the recognised treatment, as in pyonephrosis, pyosalpinx, and suppurating ovarian cysts. Fistulæ might arise in two ways: they might be spontaneous or they might be the result of an operation. If bile was discharged from the fistula, then it was certain that the common bile-duct was blocked; if only mucus was discharged then the cystic duct was blocked. The surgeon must be sure that the common bile-duct was clear before he attempted to remove the gall-bladder. For primary malignant disease of the gall-bladder removal was the best treatment if the case was seen early, but clinically recurrence was extremely common. In fact, usually by the time the disease was

recognised the opportunity of complete removal had passed. Mr. Bland-Sutton had only once in 15 years felt justified in removing a malignant gall-bladder. It was found to involve the colon and a portion of that was removed: then it was discovered that the duodenum was also affected and part of that was also taken away, but there was some of the disease unavoidably left and the patient died 14 weeks after the operation. In discussing the comparative mortality of cholecystotomy and cholecystectomy it was important to put the cases into three classes: in one class those performed for acute cholecystitis, especially the perforative cases; then in another class those for chronic cholelithiasis; and, lastly, operations for primary malignant disease of the gall-bladder should form a class by themselves. The idea of Mr. Bland-Sutton's paper may be summed up as follows: "The routine treatment of affections of the gall-bladder should be excision."

Mr. A. E. MAYLARD (Glasgow) commenced by denying that the gall-bladder had no function. It had a very definite function, for it stored bile and therefore it was well not to remove it unless there was definite need for doing so. Drainage of the gall-bladder was really very effective in many cases and it was all that was needed. Patients might do well immediately after an operation but the question was, How were they a long time, say some years, after the operation?

Mr. CHARTERS J. SYMONDS (London) gave a *résumé* of his work on the gall-bladder from November, 1901, to the present time. During this period he had performed 23 cholecystectomies; in five cases he had removed the gall-bladder and also drained the bile-ducts and in 16 cases he had done choledochotomy. In one case there was a biliary fistula for two months but after that it closed; in one other case there was a biliary fistula for nine months with jaundice but this fistula also finally closed and the jaundice disappeared. Four of the patients died, three as the direct effect of the operation; in the other case pneumonia appeared and death occurred three weeks after the operation, but it was not unreasonable to think that death was not due to the operation. The operation of cholecystectomy might be simple as a rule, but sometimes the difficulties were great, and apparently cardiac reflexes might be excited which might lead to a fatal result. In the cases in which the gall-bladder was not excised seven were treated by simple drainage, and in five others by drainage combined with choledochotomy; in two cases cholecyst-duodenostomy was done. Amongst these cases there were two deaths, and in one of these fatal cases malignant growth and calculi were present, and in the other the death was due in part to the length of the operation and in part to the anæsthetic. It was important not to lay down any hard and fast rule that cholecystectomy should always be performed; not only the character of the disease present must be considered but also the condition of the patient. The conditions for which these operations were done were: in 17 cases there were calculi, in three cases calculi and cholecystitis, and in one case there was deep jaundice with calculi; in this latter case he removed the calculi and drained. There were three cases of stricture of the cystic duct; in one case there were adhesions between the gall-bladder and the duodenum; in two cases there was chronic suppuration with calculi; and in one case hydatids were present. In two cases pancreatic growths were present and in three there was acute cholecystitis; in these two sets of cases drainage was performed. One objection to cholecystotomy was said to be the tendency to the recurrence of gall-stones, but it was very doubtful if this often occurred. If the wall of the gall-bladder was thick and white then excision was certainly best, as it was also if no bile but only mucus was present in the gall-bladder. If distension of the gall-bladder was due to the presence of gall-stones in the common duct, when these had been removed then it was well to remove the gall-bladder also, for it would be damaged. If the cystic duct was stenosed then undoubtedly it was better to remove the gall-bladder. In acute cholecystitis it was better to remove the gall-bladder. In one instance, however, though the gall-bladder was soft and black, Mr. Symonds removed a stone but only drained the bladder and packed a tampon round it and recovery followed. The analogy between the appendix and the gall-bladder was only slight, for in the case of the appendix the colon bacillus was very virulent and it was not a frequent cause of cholecystitis. In his opinion, the operation was far more difficult in men than in women and the incision needed was much greater.

Mr. E. STANMORE BISHOP (Manchester) thought that in considering the treatment it was necessary to differentiate clearly between three classes of cases: (1) malignant disease; (2) perforation; and (3) gall-stones. He protested against the routine performance of cholecystectomy in every case. Just as it was possible that the appendix might be useful, as in the performance of appendicostomy, so might the gall-bladder be useful, as in draining cases of cholecystitis and cholangitis, or when the common bile-duct was absolutely blocked.

Mr. J. D. MALCOLM (London) agreed that in many cases removal of the gall-bladder was best but if gall-stones were found in a fairly healthy gall-bladder it was well to be satisfied with drainage. It was important to remember that gall-stones rarely recurred. He had only seen two cases. In one it was possible that a stone had been overlooked at the first operation; in the other case another surgeon had removed biliary calculi five years before Mr. Malcolm saw it, and then a stone had formed around a stitch. With regard to the question of recurrence, it must not be forgotten that symptoms of calculi might be present though there was no stone. A good rule was that if the gall-bladder was not inflamed it was better to leave it. Sometimes it was a good thing to open and drain and then two or three weeks later cholecystectomy might be done. Of the greatest value were early diagnosis and treatment.

Dr. J. WARD COUSINS (Southsea) said that the diagnosis was very difficult. He mentioned a case in which a little child had been ill three days and had been sent into the hospital with a diagnosis of intestinal obstruction. She was moribund and died without an operation. At the necropsy the gall-bladder was found to be full of pus, a recent perforation was present, and general peritonitis had occurred. Dr. Ward Cousins considered that simple drainage was, in many cases, of the greatest benefit, but if recurrence of symptoms occurred cholecystectomy was desirable. In one case he had done a partial excision of the gall-bladder and the patient did very well. As to the function of the gall-bladder, it was no argument to say that we could do without it; that applied to many organs. It probably had a function, though we might not know it.

Mr. SINCLAIR WHITE (Sheffield) showed a specimen of a biliary calculus which had formed around a suture one and a half years after the first operation. He exhibited a convenient form of glass drainage-tube which he had devised for the thorough drainage of the gall-bladder; one end was enlarged so that a purse-string suture could easily retain it in position and the other was attached to a rubber tube leading to a bottle. Excision of the gall-bladder was decidedly a more serious operation than drainage, and it was often unnecessary. He had collected 158 cases of drainage, and in two there was recurrence, apparently due to stones left behind.

Professor IRVING CAMERON (Toronto) considered that in gall-bladder surgery there was room for conservatism. He reminded the meeting that 20 or 25 years ago Lawson Tait had advocated removal of the gall-bladder in all diseases of that organ, but it had been recognised that this was not really an advance, and he thought that 20 years hence Mr. Bland-Sutton's suggestions would have met with the same fate. Cholecystectomy was sometimes necessary, but drainage was the better operation in many cases as in cholangitis with pancreatitis. As to fistulæ, they did not occur if the cases were properly treated. The opening should be kept open until the discharge was found to be free from germs, and then the opening was allowed to close. As to the question of function, he thought that the gall-bladder was useful during sleep for storing bile and that removal of it might interfere with it. In one case of cholecystotomy the patient had intense vomiting, so that mouth feeding had to be given up; then rectal feeding was started, but the rectum soon became irritable and that had to be relinquished. Then he fed the patient through the opening into the gall-bladder and the patient recovered.

Professor W. L. RODMAN (Philadelphia) wished to add to the indications for cholecystectomy gangrenous cholecystitis and small shrunken gall-bladders when drainage was quite impossible. The most important point in the operation of cholecystectomy was to make sure that the common bile-duct was pervious and that there was no obstruction for the head of the pancreas. There was no doubt that the operation was becoming more frequent; probably it was three times as frequent now as it was five years ago. It should not be the routine treatment, for drainage was simpler; but cholecystectomy should be done in all suppurative cases and

in primary malignant disease of the gall-bladder, which was certainly commoner than used to be thought. Recurrence after incision for biliary calculi is rare.

Mr. G. P. NEWBOLT (Liverpool) thought that for ordinary case of cholecystitis drainage was the best treatment, but the operation to be chosen in any particular case depended partly on what assistance could be obtained for the operation; with comparatively unskilled assistance drainage was the preferable operation.

Mr. BLAND-SUTTON, in reply, pointed out that nearly every speaker had mentioned one or two cases of recurrence of calculi when only drainage had been done, or calculi had been left behind, or had formed on sutures. Sometimes, of course, it might be impossible to remove the gall-bladder, but he felt sure that in all diseases of the gall-bladder, when possible, it should always be removed.

Mr. W. TAYLOR (Dublin) read a paper on

Intestinal Obstruction Based on 30 Cases.

He described the different morbid conditions which caused the obstruction in the 30 cases on which he had operated. He urged the necessity of immediate operation in all cases of intussusception. Injection could reduce only a small percentage of cases of intussusception, and even when the reduction was apparently complete it might still be partly unreduced. If done early the operation was simple and very successful. In all cases of intestinal obstruction it was desirable to wash out the stomach both before and after the laparotomy.

Mr. J. P. L. MUMMERY (London) read a paper on

Lesions of the Sigmoid Flexure as a Cause of Chronic Colitis.

He pointed out that the recent great advances in their knowledge of the diseases of this portion of the bowel depended mainly on the sigmoidoscope. It was important to remember that chronic colitis might be confined to the sigmoid flexure. There were four methods of investigating the condition of the sigmoid flexure; they were: 1. By the sigmoidoscope; for this the lower bowel must be thoroughly emptied; no anæsthetic was required and in skilled hands no pain and even little discomfort were felt; and no damage should be done. 2. Palpation of the abdomen with the patient under an anæsthetic. 3. Examination of the discharges; this method was too little employed at the present time. Two ounces of the fluid stools were sufficient, and a small quantity of formalin should be added. Deutero-albumose might be found in the urine in some cases of ulceration. 4. By laparotomy. Simple inflammation of the sigmoid flexure might be granular, hypertrophic, or ulcerated, but no hard and fast lines could be drawn between these conditions. In some cases ulceration might be present but no pain, the only symptoms being diarrhœa. Of 36 cases in which Mr. Mummery had found definite lesions seven were cases of cancer. The presence or absence of bleeding was of no diagnostic value; mucous casts might sometimes be found. The length of history was of little importance; in one case there had been symptoms for five years. It must not be forgotten that peritoneal adhesions might cause symptoms of chronic colitis. In the treatment of non-malignant colitis rest in bed was of the greatest importance. It was a mistake to give a milk diet; a full generous diet was advisable and especially fat in the form of butter to make the stools soft should be present. Local treatment was important. The fluid was injected when the patient was in the semi-prone position and then he kept the genu-pectoral position as long as possible. A good lotion to start with was a weak solution of sodium bicarbonate and later a 0·5 per cent. solution of argyrol might be employed. At least a pint should be used at each injection, and from time to time it was advisable to examine with the sigmoidoscope to see the progress that was being made. If adhesions were present it was necessary to remove them at once by operation. Sometimes appendicostomy was useful for irrigation. A left inguinal colotomy might be done, but only for acute cases with severe diarrhœa.

Dr. M. G. FOSTER (London) asked whether some morbid condition was always visible when the sigmoid flexure was examined with the sigmoidoscope.

Mr. MAYLARD asked why the condition should be called sigmoiditis if the whole colon might be affected. He believed in washing out the whole colon through an appendicostomy opening after implanting the lower end of the colon in the abdominal wall.

Mr. MUMMERY, in reply, said that in 25 per cent. of the cases nothing abnormal could be seen by the sigmoidoscope. He explained that the sigmoid flexure might be the only part of the colon affected and therefore it might well be called sigmoiditis. In reply to a further question, he said that with the sigmoidoscope it was possible to see as high as a little above the middle of the sigmoid flexure.

Miss L. GARRETT ANDERSON (London) read a paper on

A Case of Sarcoma of the Small Intestine.

The patient was a woman, 48 years of age, and she complained of pain in the lower part of the abdomen, but it had no relation to food. There was occasional vomiting, the bowels were loose, and the patient was losing flesh. The abdominal wall was thin and on one occasion peristalsis had been visible. On palpation a swelling was felt to the left of the middle line immediately above the pubes; it was dull on percussion, but the abdomen elsewhere was resonant. The tumour was in front of the uterus and a probable diagnosis was made of subperitoneal fibroid of the uterus. The patient said that she had felt a lump there for nine years. On Jan. 3rd, 1906, the operation was performed. The abdomen was opened and the tumour was found to lie over the pelvic brim; no adhesions were present and the tumour was found to be in the wall of the small intestine, its lower end being ten inches from the ileo-cæcal valve. The tumour measured five inches in length and three and a half inches in breadth and involved the whole circumference of the bowel. Several enlarged glands were visible in the mesentery. The piece of bowel involved by the tumour was excised, the ends of the bowel were closed, and lateral anastomosis was performed. Some of the enlarged mesenteric glands were excised, but it was not found possible to remove them all. Recovery had been complete and she had gained more than a stone in weight; there was no evidence of recurrence. When the tumour was examined after removal it was seen that no ulceration was present and no constriction. Microscopically, it was found to be a small round-celled sarcoma and probably the glands were affected with the same condition, but it is often impossible to distinguish between inflammatory changes in lymphatic glands and a small round-celled sarcoma. The condition found in this case was rare. Among 21,000 necropsies in Vienna sarcoma of the small intestine was found three times; and three cases were also described in the Transactions of the Pathological Society. Obstruction was rare but there was deterioration of the general health. Prognosis was said to be bad, and only one case was recorded where the patient lived for a year after operation. This patient had now survived 18 months, and still seemed to be in good health.

Mr. G. H. EDINGTON (Glasgow) read a paper on

Cervical Cysts.

In one case—that of a boy, aged 13 years—the cyst had very wide relations: it extended upwards to the styloid process and projections from it passed between portions of the submaxillary gland. It was lined by vascular granulation tissue and after it was excised it was followed by the formation of a ranula under the tongue on the same side. Two cases of branchial cyst were also described; in one, a boy, eight months old, the fistula opened near the lower end of the sterno-mastoid, and the cyst was lined partly with ciliated and partly with stratified epithelium; in the other the condition was bilateral and the fistula opened nearly on a level with the upper end of the thyroid cartilage; the cyst was lined with squamous epithelium. In all these cases the internal attachments of the cyst were a much better guide to the origin of the cyst than was the external opening. Most of these cysts arose in connexion with the second branchial cleft; some might result from the persistence of the sinus precervicalis. The best treatment always was to excise, though this was in opposition to the teaching of most of the text-books. The paper was illustrated with some excellent photographs and diagrams.

FRIDAY, AUGUST 2ND.

Mr. MAYLARD read a paper on

The Relative Merits of Transverse, Oblique, and Vertical Incisions in Opening the Abdominal Cavity through the Antero-lateral Region.

Eight years ago Mr. Maylard published in THE LANCET an account of a case of dilatation of the stomach in which he had operated. The abdominal incision was partly vertical and partly transverse. Later a hernial protrusion appeared in the vertical portion of the incision but not in the transverse. In discussing the relative merits of the various

incisions for opening the abdominal cavity through the antero-lateral region, they must in the first place consider the anatomical disposition of the muscles, aponeuroses, blood-vessels, and lymphatics. The muscles of the lateral portion of the abdominal wall—namely, the two obliques and the transversalis—ended about two or three inches from the middle line in an aponeurosis which split to inclose the rectus muscle. These aponeuroses met in the linea alba. When, therefore, these lateral muscles contracted the lines of greatest force were nearly transverse. Therefore so far as the division of any part of the sheath of the rectus was concerned a cut made transversely was less likely to lead to a gaping wound than one made vertically. With regard to the blood-supply the vessels which coursed in the anterior abdominal parietes were the deep epigastric, the circumflex, iliac, and the superior epigastric. Therefore the margins of a wound made transversely would be more abundantly supplied with arterial blood than those of a median vertical incision. Again, the lymphatics were more abundant in all the other parts of the abdominal wall than in the median line; hence absorption of effused products was better. The conclusion from these anatomical and physiological facts was that transverse and oblique incisions gave firmer and less yielding cicatrices. Clinical experience showed that these theoretical conclusions were correct. To quote one case illustrating the division of both recti sheaths and recti muscles. The patient, who was a woman, 49 years of age, was suffering from a large uterine fibroid. A ten-inch curvilinear incision was made about one and a half inches above the pubes; in order to obtain the requisite amount of room both recti sheaths and muscles were completely divided. The operation was performed on May 6th, 1904. When the patient was seen by Mr. Maylard a few days ago—that was, after an interval of three years and three months—there was not the slightest indication of any giving of the scar. Not only was the likelihood of a sound, non-yielding scar very great with these transverse or curvilinear incisions below the umbilicus, but they gave much readier access to the pelvic organs and also they reduced considerably the time required for the performance of severe operations on the pelvic contents. In cases where a wound became septic (and every practical surgeon knew by experience that, take what precautions he might, his efforts in this direction would sometimes be defeated) the cicatrix might be as sound as that after the healing of a purely aseptic wound. It was quite the exception for a septic median incision to form a sound cicatrix; the result sooner or later was almost invariably a ventral hernia. The reason of this firmness after a septic transverse incision was simply the good arterial blood-supply and the removal by the numerous lymphatics of the exuded material. In favour of the median vertical incision was the rapidity with which the abdomen could be opened; this rapidity was due to the fewness or complete absence of blood-vessels which required tying. If, therefore, time was a serious consideration in the treatment of any abdominal case a median incision should be made; but in all other cases it would be found that a more secure cicatrix, one which would not ultimately lead to ventral hernia, would result from the employment of a transverse, oblique, or curvilinear incision.

Mr. STANMORE BISHOP read a paper on

Anterior Nephropexy.

The present results of the various operations for nephropexy could not be described as satisfactory and a conclusive evidence of this was to be found in the increasing complication of the operations which had been devised. The requirements of a satisfactory operation were that the kidney should be fixed and at the right height so as to prevent any possibility of a kinking of the ureter and blood-vessels. It must not be forgotten that in most cases of the mobile kidney a certain degree of neurasthenia was present. Mr. Bishop discussed the etiology of moveable kidney but did not come to any definite conclusion, though he agreed that the condition was commoner in women than in men and on the right side than on the left, 80 per cent. occurring on the right side. He attributed this greater frequency on the right side to the fact that the suspensory ligament of the colon which was attached to the kidney on the right side tended to pull the kidney down, as it pulled in the opposite direction to the peristalsis, while on the left side, as the peristalsis was in the downward direction, no such action would occur. An anterior incision for suture of the kidney enabled the operator to see exactly the position in which the kidney was placed. After the abdomen was opened the posterior peritoneum over the kidney was divided transversely and then a transverse incision was made through the kidney capsule about one-third of the way from the lower end, a flap of capsule was turned downwards, and the incision in the peritoneum was sewn up. The left forefinger defined the entrance of the ureter into the kidney and immediately below this a handled needle carrying some stout catgut was passed directly backwards, emerging in the loin; this stitch traversed the flap of capsule; the same piece of catgut was again carried backwards with the needle about 1 centimetre or 1½ centimetres below the first. The two ends were later tied in the loin, the knot lying in a small skin incision. A series of such stitches was inserted around the lower end of the kidney. No important structures were liable to be damaged by these stitches. Mr. Bishop had done the operation on ten cases and all were now doing well. The first two relapsed because then he had not recognised the importance of including the capsule in the stitches. In one case there was some suppuration in the loin around some sutures.[1]

Mr. R. W. MURRAY (Liverpool) contributed a paper on

The Saccular Theory of Hernia.

Owing to the limited time at his disposal he confined his remarks to inguinal and femoral herniæ, though he believed that the saccular theory, as it had been called by Mr. R. Hamilton Russell of Melbourne, offered the only satisfactory explanation of non-traumatic abdominal herniæ. There were two distinct theories of the origin of oblique inguinal hernia. The orthodox theory was that when the hernia appeared during infancy or childhood the sac was pre-formed, but if the hernia occurred during adult life the cause was weakness of the abdominal wall and the sac was acquired. The supporters of the saccular theory believed that in all cases of oblique inguinal hernia the sac was pre-formed. In infancy oblique inguinal hernia was very common, and all agreed that it was due to a want of obliteration of the processus vaginalis. Sometimes—i.e., in 18 per cent. of the cases—the cavity of the sac communicated with the cavity of the tunica vaginalis, but in the remainder of the cases the connexion with the tunica vaginalis had been closed. In the adult the common form of sac was exactly similar to that found most commonly in infants. In adults a hernia might become strangulated the first time it appeared, and in some of these cases it communicated with the tunica vaginalis, and then all would agree that the sac was congenital. In other cases, however, the hernia might become strangulated at its first appearance and the sac might be distinct from the tunica vaginalis. Most surgeons would say that in such a case the sac was acquired, but when such a case was submitted to operation a long narrow neck might be found and no extravasation of blood outside the sac or other evidence of sudden formation was seen, so that it was probable that the bowel had descended into a peritoneal diverticulum which had existed at birth. Mr. Murray described a case where he operated on a hernia in a man, aged 28 years, and the sac was indistinguishable from an ordinary hernia, yet the mother subsequently told him that the patient had had a rupture on that side when a baby, and in all probability the bowel had again descended into a sac which it had occupied 28 years before. It was at least probable that many, if not all, of the herniæ which were usually called acquired were really herniæ in congenital sacs. In children simple ligature of the sac was generally sufficient to effect a radical cure of an inguinal hernia, and even in adults a radical cure was often brought about by little more than obliteration of the sac. Mr. Murray now operated on inguinal hernia both in children and in adults in the following way. He laid open the inguinal canal, tied the sac at its neck, and then he united the aponeurosis of the external oblique by overlapping; and the results were very satisfactory. Inguinal hernia was so common that they ought to be able to find in the post-mortem room evidence of the existence of potential herniæ. Dr. Nathan Raw examined 200 consecutive bodies and found potential herniæ in 47 bodies and in these there were 68 diverticula, of which 13 were inguinal, 52 were femoral, and three were umbilical. The size of the opening at the internal ring varied greatly. Mr. Murray considered that when a patent funicular process existed the occurrence of a hernia depended largely on two factors: the size of the opening and the strength of the muscles guarding it. It was Mr. Murray's opinion that in a person born with a completely obliterated processus vaginalis it was impossible for an oblique inguinal hernia to occur. As

[1] Vide THE LANCET, August 3rd, 1907, p. 283.

to femoral hernia, in the 200 bodies examined 58 femoral diverticula were found, 14 of them being bilateral. They occupied exactly the site of a femoral hernia and the diverticula were long and narrow and therefore much more likely to have been the result of traction than of a pushing force from within. As in many cases more than one diverticulum was present there was much probability in favour of a developmental origin. Especially was this the case where the pouches were bilateral. It was impossible that in all these cases herniæ once existed and yet no history of any such lesion was obtainable. The lateral expansion of the pelvis at puberty and the increased pelvic pressure during pregnancy might account for the greater frequency of femoral hernia in women. The results obtained after operating for the cure of femoral hernia supported the view that the presence of the sac was the primary cause of the hernia, for recurrence was rare after operation, even when no attempt had been made to strengthen the abdominal wall at this point. It was difficult to account for the presence of peritoneal diverticula in the femoral region. Mr. Hamilton Russell's explanation was that early in fœtal life, when the bud-like processes appeared from which the lower limbs were developed, a little pouch from the pleuro-peritoneal cavity was produced by the traction of the femoral vessels. In support of this was the fact that in femoral, sciatic, and obturator hernia the sac was close to blood-vessels leaving the abdominal cavity. There was a great practical importance attaching to the saccular theory of hernia, for if the chief factor in the production of the hernia was the presence of the pouch then the mere removal of the pouch would be the chief point in the operation for radical cure.

Mr. A. HEYGATE VERNON (Bournemouth) read a paper on

A New Operation for Hæmorrhoids.

He had employed the new method for five years and so far as he had been able to learn it was different from any other yet invented. One object in devising the method was to lessen the amount of blood lost. The patient was anæsthetised and placed in the lithotomy position. The anus was gently dilated and then a special conical metal plug was inserted; this was 2½ inches long and 1 inch in diameter. It had four holes near its lower margin and a large-headed pin was passed through the skin about three-quarters of an inch outside the anus; it passed deep to the external sphincter, into the bowel, then into one hole of the plug and out at the opposite hole, then deep to the sphincter on the opposite side, and so out through the skin. Another pin was passed in a similar manner at right angles to the first. A piece of medium-size rubber-tubing was fixed on the point of one of the pins and then wound round two or three times deep to the pins, and finally was fixed over the point of the pin from which it started. The piles now stood out and with a pair of scissors the piles were cut away. There was practically no hæmorrhage owing to the rubber tubing. This was then taken off and if any bleeding points were present they were tied or crushed. The skin and mucous membrane were then sutured together with a continuous catgut suture, the pins were withdrawn, and the plug was removed. Healing was soon complete. Mr. Vernon had never seen any tendency to contraction. The chief merits claimed for the operation were, the absence of hæmorrhage, the complete removal of all the piles, and the rapid healing of the wound. Mr. Vernon had employed the method with success during an acute attack of hæmorrhoids.

STATE MEDICINE.

FRIDAY, AUGUST 2ND.

Professor T. A. STARKEY (McGill University, Montreal) read a short paper on the

Economical Disposal of Sewage in Small Rural Communities.

He commenced by saying that in this matter it was wise to begin by finding out what that was which the law required from them and the requirements were three in number: (1) that no nuisance should be created; (2) that where sewers did not exist the means for disposal should be such as met with the sanction of the local authority; and (3) that the water-supply should be fully safeguarded. Further, there were three cases which required treatment—the isolated dwelling, small communities of less than about 300 population, and rural communities which more nearly approached to urban conditions. The two common conditions which prevailed originally were the privy pit, which could never be kept clean, which produced a sewage-sodden soil and which could not possibly be disinfected, and the bricked cesspool which required to be emptied at frequent intervals and which was open to many objections in its ordinary form. The method which he recommended and which he had put into force for many years and in many places of such varying climates as Canada and India was a modification of the septic tank with intermittent downward filtration worked on the subsoil irrigation plan. He wished to point out that the separation of excreta from household slops was quite immaterial in the character of the sewage requiring treatment, as had been shown by the analyses which he quoted, and further, that however successful mere tank treatment might be from a chemical point of view, it was only by treatment upon land that a good effluent could be obtained when judged from the standpoint of the bacteriologist. He constructed a covered tank, made watertight with cement or concrete, and capable of holding the sewage produced in 36 hours of the dwellings it supplied; he declined to bind himself as to the quantity of sewage produced per diem, as the consumption of water per head varied so widely in relation to the ease or difficulty of procuring it. After passing through this tank the sewage was passed off in given quantities and at stated intervals by an automatic flushing arrangement into a series of agricultural drains about six inches below the level of the ground. He divided his quantities according to the case and made his automatic flush about every three hours. He saw no objection to the admission of rain-water nor had it given any trouble in the cases within his knowledge. As to the character of the land, of course he admitted some was better than others and no doubt clay was the worst, but he had never found any soil so bad but that it could be worked and utilised. He had in this method followed so far as possible a recent dictum of Professor Bostock Hill which he considered worthy of quotation, in which he said: "Some form of resolution in a tank, followed by oxidation in a filter-bed, is the method which has most claims for adoption at the present time;" and he had the satisfaction by its means of obtaining in practice a really good effluent which would satisfy not only the chemist but the bacteriologist.

Dr. J. SCOTT TEW (West Kent Combined Districts) regretted that his experience of similar conditions had not been so satisfactory as the experiences related by Professor Starkey. He thought, so far as his experience went, that with such a system as had been described a detritus tank would be necessary, and if that were the case the admission of storm water would be fatal to its good working.

Professor H. R. KENWOOD (London) felt grave doubts as to the period of 36 hours for the collection of sewage; it had been found that from 12 to 15 hours was as much as could be safely treated. Where the sewage remained in the tank for so long a period there was a danger that it would become over-septicised and a consequent deposition of colloid matter would take place which would render the working of the tank very ineffective.

Mr. S. N. SCOTT (Plymstock) said that the whole crux of the treatment of sewage in his district was the difficulty of acquiring land, especially in such parts of the rural district as were suburban and might be expected hereafter to become residential; in such places directly land was inquired for for this purpose the price became prohibitive. Houses were unfortunately allowed by the by-laws to be erected without any land attached to them and he could quite understand that if every house stood on half an acre, each individual house could make use of Professor Starkey's system.

Mr. H. H. TIDSWELL (Torquay) related his experiences in Persia where the inhabitants adopted a dry earth system, subsequently drying the mixture in the desert and using it as manure; he found it quite free from nuisance.

Professor STARKEY briefly replied and pointed out that he allowed for a 36 hours' maximum which he found necessary for a 24 hours' flow as it was not wise to estimate too closely to a maximum requirement.

Mr. TIDSWELL then read a paper

On the Influence of the Tobacco Habit on the Health of the Individual and the Nation.

Tobacco, he said, as all were aware, was a poisonous herb containing a virulent poison called nicotine, which was especially injurious to the young. The only use he could conceive for tobacco was to keep off mosquitoes and that was an unimportant matter in this country. Habit was quite as strong a factor in smoking as sentiment; he was

once a moderate smoker and he well remembered the pangs he endured in breaking himself of the habit. If he had not done so he would have become a hypochondriac. Personally he had no faith in legislation and believed that boys instinctively hated tobacco and that if the foolish sentiment were once killed they would have no desire to smoke. He viewed with horror the cigarette habit which had much to his regret reached even the ladies, and which was killing boys by hundreds and thousands. Boys and girls should be induced to take a pledge not to smoke until they were 50 years of age. Medical men had a duty to perform even if it involved some self-sacrifice on their part—a duty to their nation and to the principles of their profession. So much for the danger to the public, but from the point of view of the individual there were diseases innumerable produced by the use of tobacco. Frontal headache, neuralgias, bronchitis, pharyngitis, and palpitation of the heart were matters of common occurrence, while epithelial cancer of the tongue was often due to smoking; angina pectoris and general paralysis of the insane had also been traced to its use. Having regard to the objects of the Association as set forth in memorandum he felt strongly that it was its duty as a body to enter upon a crusade against this deadly evil which was sapping the health of the individual and undermining the vitality of the nation.

Dr. A. DRURY (Halifax) had always understood that tobacco was introduced into England by Sir Walter Raleigh, a native of that fair county in which they were assembled, but it would appear from the leaflets circulated by Mr. Tidswell that it was the direct invention of Satan. So far no case had been made out against the moderate use of tobacco by adults, but he was quite willing to assent to the dangers of juvenile smoking and to assist in its prevention. He regarded tobacco as a disinfectant and a brain sedative and believed that it was a preventive to tuberculosis. There were, of course, many things which were not fit for boys but which men might do with impunity.

Dr. J. C. MCWALTER (Dublin) understood that tobacco had a preventive if not a curative effect on tubercle. He was himself a non-smoker but he began to think what a lot of innocent pleasure he had missed. Among out-patients he had found few suffering from tuberculosis who were smokers. He deprecated the use of cigarettes by the young and especially by young women.

Dr. F. E. WYNNE (Leigh) pointed out that to deny the use of any article because some people made it an abuse was quite irrational. As to the poisonous nature of tobacco, he had known men poisoned by excess in many things, even the eating of beef could be poisonous. He had no belief in an instinctive dislike to tobacco smoke; horses certainly liked it and donkeys also. He had smoked during the whole of his adult life and although no doubt Mr. Tidswell would tell him that by so doing he had shortened it, he was still alive and not yet in a position to argue the point.

Dr. A. NEWSHOLME (Brighton) hoped it would not go forth as a scientific dictum that tobacco was a preventive to tubercle. It was true that the bacillus of tuberculosis could be killed by nicotine, but in such doses that the human being would also be killed. Bars and smoke-rooms were among the chief places in which the tubercle bacilli were harboured and barmen were notoriously prone to pulmonary tuberculosis; that probably arose from the filthy habit of spitting in such places and from the dust arising from the dried sputa.

Dr. E. J. SLADE-KING (Ilfracombe) gave a short address on the Difficulties attending the Isolation of Infectious Cases in Scattered Rural Communities and pointed out that the chief difficulty was to exclude the neighbours. The best way was to isolate the sick child in the house and endeavour to get the other children boarded out at a short distance for a small charge which could be entered in the costs of the rural authority as part of the expenses of disinfection. He related a story of how in a Devon village a young Sunday scholar died from diphtheria and how the whole of the class-mates were permitted to see the body and to kiss the dead child. The horrible epidemic of diphtheria which ensued produced no less than six deaths in that village and had left an impression on the minds of the people which would never be erased. He emphasised the need for small isolation hospitals for the villages.

Dr. MCWALTER spoke briefly on a method of Injecting Dead Bodies with Formalin before Burial as a method of preventing the rapid pollution of the soil by cemeteries which was not open to the same objections as were urged against cremation.

OPHTHALMOLOGY.

WEDNESDAY, JULY 31ST.

The PRESIDENT (Dr. L. H. TOSSWILL of Exeter), in opening the section, extended a warm welcome to all those interested in ophthalmology who had gathered to the meeting of the Association. Some were familiar friends and others, no less welcome, had come very many miles to their meeting. In the West of England Eye Infirmary at Exeter they had, he said, a centre of ophthalmic work of the greatest interest; it was established in the earliest days of the science and counted only four years less in age and antiquity than Moorfields.

Dr. E. LANDOLT (Paris) opened a discussion on

The Form and Manipulation of Instruments used in Ophthalmic Surgery.

He said that their branch of surgery had formerly been but a part of general surgery and many of the instruments retained the form and design of their origin. In eye work the field of the operation was strictly limited and the globe on which the work was done was one of the most mobile of the parts of the body. They might therefore well assert their independence in the design of their instruments. Precision was everything to them. The linear cataract knife was an instrument which in its design and manufacture was a triumph of art. The keen narrow blade and the well-balanced handle made it perfect in a trained hand. In its use the fingers should alone supply the driving and directing force; the wrist, and still more the arm, should be excluded from participating in the movement. Dr. Landolt contrasted the correct mode of handling the knife, the curette, the scalpel, and the keratome. In the use of cutting instruments on either eyeball or eyelids it was essential that the operator should have a secure point of support for the hand. This was properly obtained by balancing the hand on the little finger upon some part of the orbital margin. Most of the cutting instruments were so arranged that this could not be done; the blades were either too long or they were separated from the handle by a lengthy shaft. He showed drawings of instruments in which this defect of design had been overcome. Iridectomy knives, he felt, left much room for improvement; usually the shafts were so long that one was obliged to grip that instead of the handle. He showed a designfor an improved keratome, in which not only was the shaft of reasonable length, but the blade was so shaped as to permit of the readiest penetration of the cornea and also of the widest corneal section. This he obtained by shaping the arrow-headed blade so that the point was of an acute angle and the edges of the broader part formed a gradually increasing angle of divergence. The balance of many eye instruments depended on the material of the handle. Ivory was still the ideal material. It was not too heavy or too light; it was a poor conductor of heat; it was not slippery but gave a delicate hold. It was regrettable that ivory handles did not stand the high temperatures of sterilisation; the defect was rather in the cement than in the ivory. Perhaps this fault could be overcome. Most forceps had defects in that the springs were too strong and the blades too weak; the fingers were fatigued by overcoming the resistance of the former and when some tissue such as the lacrymal sac had to be held firmly the blades buckled inwards and the tissue slipped from the teeth. Further, the teeth of fixation forceps were placed perpendicularly to the blade; it was rarely that they applied the forceps perpendicularly. Usually the forceps made an angle of 45° with the surface upon which they were to act. He had a forceps made with the row of teeth set at an angle of 45° to the blade; the teeth were long and sharp and interlocked when closed. The effect was excellent. Dr. Landolt discussed the manner of holding the various forms of eye scissors and also their pattern and make. Generally he found that they were too long, both in the blades and in the handles, and further that the handles were too slight for some of the usage required of them.

The PRESIDENT of the Section, Lieutenant-Colonel H. HERBERT, I.M.S., and Dr. R. A. REEVE (Toronto) expressed their agreement with the lines of Dr. Landolt's criticisms.

Mr. W. H. H. JESSOP (London) said that the curvilinear keratome was a most useful instrument, particularly in insuring the wide incision necessary in operations for glaucoma. He found the "cross-bill" forceps exceedingly handy in "advancement" cases, when it was particularly necessary to secure a button-hole of the tissues down to the sclera.

Dr. KARL A. GROSSMANN (Liverpool) thought that some of Dr. Landolt's suggestions on the dimensions of instruments must of necessity be modified according to the size of the hand and fingers of the operator; one size would not do for all.

Mr. SIMEON SNELL (Sheffield) read a paper entitled

An Inquiry into the Causes of Blindness in 333 Inmates of the Sheffield School for the Blind,

in which he said that the school housed 70 children. Formerly it took fewer children, and only those who were quite blind, and kept them for a longer period. Since the passing of the Education Act of 1893 the scope of the school had been widened; the partly blind were now admitted—i.e., those who were "too blind to read the ordinary school-books used by children." These cases were, however, few in number and did not affect the scope of that inquiry. The beds were equal in number for males and females, so no information was afforded as to the sexual distribution of blindness. Mr. Snell had always depended on his own examination for a diagnosis and supplemented it by inquiries from parents. In most cases these two lines of inquiry were ample to determine the cause of blindness. In a few, where the clinical signs were indeterminate and where no previous history could be obtained, the cases had been marked unclassified and left out of account. Ophthalmia of the newly born provided the largest number of inmates. Out of a total of 321 cases no fewer than 136 could, with fair accuracy, be traced to the result of this disease. Thus more than a third, or 42·36 per cent., were due to one cause and that a preventable disease. A careful consideration of the records for each year did not point to a diminution of the proportion in recent years. He thought that the medical profession was fully alive to these facts, but that much was needed to be done before midwives could be impressed with the dangers of the disease and the urgent necessity for cleanliness and simple preventive measures. He was pleased to note that recently the Central Midwives Board had censured a midwife for failing to call in medical aid to attend an affected child and that for a like neglect another had been struck off the rolls. Ulceration of the cornea in later years of life accounted for blindness in three boys and four girls. Trachoma accounted for only one case. Interstitial keratitis blinded three boys and seven girls. Sympathetic ophthalmia caused 22 cases, or 6·85 per cent.; of these 14 were boys and eight were girls. The injuries causing these disastrous results were very various: knitting needles, sticks, broken pottery, wire, nails, stones, forks, sparks from fire, the thorn of a tree, scraps of iron, quicklime, caustic potash, and glass were held accountable in one or more cases. And the age at which the accidents occurred were as various, some occurring as early as two years of age and others as late as 14 years. Congenital defects accounted for 47 cases. In three no eyes could be discovered even after careful examination under a general anæsthetic. Large eyes (hydrophthalmia) accounted for five cases. Six cases of microphthalmia with many anomalous conditions of the uvea and lids were almost or quite blind. There was a single case of albinism partially blind and one of nystagmus for which no particular cause could be found. Congenital cataract accounted for 30 cases, or 9·34 per cent.; of these eight were girls and 22 were boys. Several of the cases had been operated upon. In some the operation had been effective so far as the lens was concerned but vision was not improved by reason of a defective optic nerve. Some were likely to have improved vision by further operation and seven had not been operated upon at all, yet from the appearances of ordinary lamellar cataract favourable results might have been anticipated. Amongst these were three brothess; inquiry elicited that the father was similarly affected but five other children of the family were healthy. Retinal, choroidal, and optic nerve disease of congenital nature accounted for 20 cases, or 6·23 per cent.; in some of these a family relationship was ascertained and the children were intellectually dull. A considerable number of the children were blinded by inflammations coincident or subsequent to an attack of one of the exanthemata. Small-pox caused four cases. All were completely blinded; three had not been vaccinated and the fourth had been vaccinated in infancy but suffered from small-pox at the age of 16 years when she was blinded. Scarlet fever accounted for nine cases. In one case there was atrophy of the optic nerve and in the others the actual cause of the blindness was a purulent inflammation of the eye and ulceration of the cornea. Measles caused 11 cases and German measles two cases; in one of these last meningitis succeeded the attack and blindness followed from optic atrophy. Enteric fever was held responsible for two cases of optic atrophy and whooping-cough for another two. Meningitis and brain tumours with optic atrophy accounted for 35 cases, or 10·9 per cent. Injury to the head caused optic atrophy in no less than seven cases. Glioma necessitated the removal of the eyes of two children. There was one case each of compound hypermetropic astigmatism and of high myopia. In one child the eyes were destroyed by burns resulting from a fall into a lime-pit. Malingering accounted for one case—that of a girl, aged 18 years, who was taken from the workhouse infirmary; one eye was amblyopic from squint but the other had excellent vision.

Mr. SYDNEY STEPHENSON (London) commented on the high proportion (42·36 per cent.) of the inmates blinded as the result of that preventable disease—ophthalmia neonatorum. He moved for the acceptance of the meeting the following motion:—

That in the opinion of the Section of Ophthalmology the time had come when action should be taken by the British Medical Association towards the prevention of ophthalmia neonatorum.

The motion was seconded by Dr. GROSSMANN, who said that at the Birmingham meeting of the Association and at the International Congress at Berlin he had moved similar resolutions, and was carried unanimously.

Dr. ALEXANDER TROTTER (Perth) said that ophthalmia neonatorum was diminishing in his district. He had only seen one case in the general hospital in four years and not one in his private practice. He believed that this was due to the use of silver nitrate as a prophylactic.

Mr. F. RICHARDSON CROSS (Bristol) urged the necessity of the State dealing with ophthalmia neonatorum. In many infants blind from cataract the condition was complicated by abnormal development of the brain or retina. As regards sympathetic ophthalmia, he felt that a wounded eye should be saved where possible; but all should be carefully watched, for it was easy for a child with a wounded eye gradually to acquire sympathetic ophthalmia without observation and thus become blind. There were cases of optic neuritis in young children which suggested tumour; some recovered and others became blind from optic atrophy. He raised the question whether trephining should not be attempted at an early period of the neuritis.

Dr. JOHN HERN (Darlington) said that he had collected statistics of blindness similar to those of Mr. Snell, though not for so large a number of children. In his experience most of the cases of ophthalmia neonatorum occurred in the practice of midwives, and with the increasing numbers of midwives special endeavours should be made to control this disease.

Dr. CECIL E. SHAW (Belfast) supported Mr. Stephenson's proposition. He felt sure that the Science Committee of the Association would gladly take up the matter. He thought that Mr. Stephenson should indicate the form which the proposed action should take. He had noted recently in Belfast some cases of ophthalmia neonatorum caused by the use of too vigorous prophylactic measures employed by midwives.

Dr. W. E. F. THOMSON (Glasgow) said that he had himself examined the statistics of the Glasgow Eye Infirmary and found during the last 15 years no appreciable decline in the number of cases of ophthalmia neonatorum.

Dr. E. DYKES BOWER (Gloucester) considered the number of rare congenital deformities in Mr. Snell's list to be unusually large. He expressed his surprise at the proportion in which cases of certain other disorders occurred in the list.

Dr. HENRY MANNING FISH (Chicago) read a paper

On the Relation of Diseases of the Nasal Accessory Sinuses to Optic Neuritis

He said that optic neuritis in connexion with nasal sinus disease had aroused a good deal of attention of late. Many cases had been reported showing how important was the recognition of the seriousness of this chain of cause and effect. Some few observers appeared still to look upon the two lesions as merely coincident. A search of the literature of the subject elicited records of over 100 cases of both primary and secondary optic neuritis with all degrees of visual disturbance, from papillitis with no reduction in vision, to total loss of perception of light. The cases showed that affections of each one of the nasal sinuses—the frontal and maxillary, as well as the ethmoidal and sphenoidal—could cause optic neuritis, and this because direct extension of the inflammation was not always necessary to produce an affection of the

optic nerve. Dr. Fish quoted cases recorded by Richet, Fliess, Hajek, and others in support of this view. Acute sinusitis, he said, was most commonly seen in a cold in the head; there were congestion and a feeling of fulness or heaviness, sometimes accompanied with a greenish nasal discharge. It tended to heal spontaneously. Chronic sinusitis might exist for months or years without causing inconvenience, until some exacerbation was produced by an exposure to cold or damp. Dr. Fish gave some details of 36 cases which he had collected and a general summary of the clinical conditions. Pain was not found to be a marked feature of the disease; it could only be considered to be severe in one or two cases. Purulent discharge, usually held to be a classical symptom, was frequently wanting. Nasal congestion or engorgement of the turbinates, both middle and lower, was found to be a regular and most suggestive symptom. Paresis of the external ocular muscles occurred nine times, or in 25 per cent. The three cardinal symptoms of closed sinusitis were dizziness, dull pain, and nasal congestion. He considered that there was evidence to show that many cases of optic neuritis which had hitherto been credited to some unexplained influence of measles, scarlet fever, influenza, and facial erysipelas were really due to sinusitis or empyema of one or other of the sinuses set up by the infective fever. Hajek, Pearce, Wolff, and Weichselbaum had all found these conditions post mortem and so frequently and regularly that the sequence could scarcely be doubted. In a very few cases the symptoms had been mistaken for glaucoma, but the causal relation of sinusitis with the eye symptoms was proved by a complete recovery on draining the cavities. These cases showed how important was the thorough examination of the nose in all cases of optic neuritis and the importance of securing efficient drainage of sinuses in suspected cases. They should not rely on natural drainage, though it had been shown to be sufficient in some cases.

Dr. R. PICKARD (Exeter) stated that he had recently seen a case of double optic neuritis, not retrobulbar, associated with purulent discharge from above the middle turbinals; the vision improved with relief of the nasal symptoms.

Dr. REBER (Philadelphia) felt that the diagnosis of latent accessory sinus disease was extremely difficult and required great skill. He was hardly prepared to admit that it could be the cause of bilateral optic neuritis. He readily assented to its connexion with unilateral neuritis, and not only sinusitis but carious teeth or some other similar local focus of sepsis might produce the neuritis.

Mr. W. J. CHICHELE NOURSE (London), speaking as a rhinologist, expressed his appreciation of the findings of the paper and referred to the work of Ziem of Dantzic on the subject. In all cases of sinus disease he had noted the condition of the eyes but so far had found nothing of importance.

Dr. BOWER entered a plea for the routine examination of the nasal cavities by the ophthalmic surgeon. He had done so for some time with the result that he did not feel that the association of nasal disease with optic neuritis was common.

Dr. A. HILL GRIFFITH (Manchester) asked whether the cases described by Dr. Fish exhibited central scotomata in the field of vision and whether they were really cases of retro-ocular neuritis, for it was worth remembering that such cases commonly recovered even if untreated.

Dr. FISH, in reply, said that some of the cases were certainly retro-ocular neuritis, while others were as certainly papillitis.

PSYCHOLOGICAL MEDICINE.

THURSDAY, AUGUST 1ST.

Dr. F. PETERSON (New York) read a paper on

The Galvanometer as a Measurer of Emotions

in which he said that he had been much occupied during the past winter in the use of the galvanometer as an instrument of precision in psychophysical research. Féré, in 1888, was the first to discover the perturbations of the galvanic needle by emotional influences. Two years later Tarchanoff, a Russian, gave an account of similar experiments, which were corroborated by Sticker in 1897. In 1902 Sommer reported somewhat unfavourably upon the use of the galvanometer in this respect. E. K. Müller, an electrical engineer of Zürich, in 1904, experimenting on himself, led Veraguth and Jung to confirm Tarchanoff's work, and their results were published recently. His own experiments had been conducted with Dr. Jung at Zürich upon both normal individuals and cases of insanity and were published in *Brain*, July, 1907. They employed the mirror galvanometer of Deprez-d'Arsonval with a horizontal celluloid scale placed one metre from the galvanometer. A moveable indicator recorded the deviations of the light upon the kymograph. A rheostat was employed and usually one Bunsen cell. The electrodes used were copper plates upon which the hands or feet were placed. At times jars of warm water for contact were employed. As soon as the test person was placed in the circuit a rapid rise in the curve with some fluctuation took place, due to expectant attention, a form of emotion varying in different persons. This effect, however, soon subsided and the experiment proceeded. Various stimuli were employed —sensory, verbal, intellectual, and emotional—and were ordinarily repeated three times. In many cases word associations were used. Eight normal individuals and 11 cases of dementia præcox were experimented on. The galvanic wave began to rise in from two to five seconds after the stimulus in normal conditions, but in abnormal states the latent time was increased even from eight to 27 seconds. Every stimulus accompanied by an emotion deviated the galvanometer in proportion to the liveliness of the emotion aroused. Repetition brought about exhaustion of the power of the stimulus. A particular value was attached to the use of the galvanometer with word associations striking emotional complexes, which might prove useful in exploring the minds of neurasthenics, hysterics, the insane, and criminals. In cases of acute katatonia the galvanometer usually registered a straight line, showing an absence of emotion. Irregularities affecting the movements of the galvanometer due to respiratory or other physical influences were all readily differentiated from the purely psychic perturbations. Tarchanoff regarded the phenomena as due to a secretory current of electricity associated with the sweat glands. Sticker thought that the capillary system of blood-vessels was concerned in the manifestations, but the phenomena occurred when the Esmarch bandage was in use. Dr. Peterson was therefore inclined to believe that the sweat glandular system seemed to be the chief factor, producing a current under irritation or by altering conductivity. The pneumograph was simultaneously used with most of their experiments because of the proverbial influence of emotions upon respiration. Respiration being under conscious control when affected by emotions produced curves not only for the moment but for a considerable time afterwards, as shown by the pneumograph, whereas the galvanometer, being beyond the control of the will, showed waves quickly subsiding with the fall of the emotion.

Dr. W. F. MENZIES (Cheddleton) asked what interval of time elapsed between the application of the stimulus through the sweat glands and the movement of the galvanometer. He also stated that minute electrical currents resulted from muscular contractions in the cerebral circulation, which had to be taken into account.

Dr. F. W. MOTT (London) was of opinion that the phenomena were due to muscular action accompanying emotional states rather than to currents in the sweat system. He suggested that a plethysmographic record should be taken from the hands to compare with that from the galvanometer used with wet electrodes from the feet.

The PRESIDENT of the section (Dr. T. CLAYE SHAW of London) thanked Dr. Peterson for his able contribution which led him to hope that the emotions might be as accurately measured as were already the processes underlying sensation and memory. The use of the galvanometer might also possibly be investigated in criminal cases where there was often a sudden rise of emotion.

Dr. PETERSON briefly replied.

Dr. GEORGE M. ROBERTSON (Larbert) read a paper on

The Presence of a Bacillus in the Blood of Persons Suffering from General Paralysis of the Insane.

He said that the researches of which this paper was a summary were inspired by the Morison lectures by Dr. W. Ford Robertson and were undertaken with the object of confirming the definite conclusions to which he had come that "a diphtheroid he had named the bacillus paralyticans was the specific etiological factor in the production of general paralysis and tabes dorsalis." The observations were carried out under the direction of Dr. George Robertson by Dr. C. H. G. Gostwyck and Mr. J. Theodore Anderson, medical officers, and Dr. Winifred Muirhead, the bacteriologist, of the Stirling District Asylum. In conducting this research they avoided the mucous surfaces of the body.

The observations reported in this paper were principally made on the blood and cerebro-spinal fluid of living persons. The *modus operandi* of the method for obtaining cultures from the blood was then described. Special syringes easily sterilised and kept sterile were used, 10 cubic centimetres of blood were drawn off from the median basilic vein, and this was run into three flasks, each containing 100 cubic centimetres of sterilised broth. These syringes and flasks were always kept ready, and they then waited for the development of a congestive seizure in any of their cases of general paralysis. Blood smears were usually made at the same time, stained with Jenner's stain, and examined microscopically for organisms. In some cases cerebro-spinal fluid was taken by lumbar puncture. The first case examined (Nov. 15th, 1906) was that of a man in the third stage of the disease in a severe convulsive seizure with a temperature of 103° F. A blood count was taken within an hour of the commencement of the seizure and the white blood corpuscles numbered 12,000 per cubic millimetre. There was a polymorph-leucocytosis at the expense of the lymphocytes. Blood smears were taken and stained with Jenner's stain. 10 cubic centimetres of blood were also withdrawn and put into 300 cubic centimetres of broth and incubated. On examining the smears isolated organisms having a bipolar staining like diphtheroids were found in many fields. In one remarkable field, of which a photograph was shown, there were two groups of four and seven bacilli respectively which were well stained and lying quite free. They were unmistakeable micro-organisms. The broth on naked-eye examination after 48 hours appeared to be unchanged and sterile, but on examining a hanging drop organisms were seen in it. Plating was proceeded with in the usual way, but though every effort was made these were all unsuccessful. These repeated failures were disappointing as it was certain that organisms were present. Dr. Theodore Shennan, pathologist to the Royal Edinburgh Infirmary, inoculated mice and guinea-pigs in the laboratory of the Royal College of Physicians in the hope that the micro-organisms might be recovered through them. At the end of four days a mouse was killed and its spleen was found to be enlarged and congested. Two flasks of broth were inoculated from the liver and spleen and both flasks after 48 hours contained a pure growth of bacilli and from each of these plate cultures were made and an organism successfully recovered. A fortnight afterwards another mouse which had been inoculated was killed as it was in a dying condition. It was paralysed on the right side of the body. The other animals inoculated appeared to have suffered no evil effects. On Jan. 6th, 7th, 10th, and 11th blood smears were taken, but no organisms could be detected. On Jan. 13th, when the patient's temperature was 99·8°, cerebro-spinal fluid was drawn off by lumbar puncture and broth inoculated. After 48 hours' incubation the broth appeared sterile to the naked eye, but organisms were seen under the microscope in a hanging drop. Plating was then proceeded with and they were successful in obtaining colonies and in recovering an organism. On the next day the patient's temperature rose to 103·4° and he died. At the post-mortem examination, which presented the typical signs of general paralysis, broth was inoculated from the heart blood and cerebro-spinal fluid after searing the surface of the heart and brain. The former was sterile, but from the broth culture of the latter an organism was recovered. The three organisms which were recovered from this case—namely, from the blood during life, through the intermediary of the mouse, and from the cerebro-spinal fluid during life and after death—were morphologically and culturally identical and they resembled morphologically those seen in the blood films. On 12 other occasions in six cases of undoubted general paralysis an organism was recovered from the blood or cerebro-spinal fluid and owing to alterations in the methods it was not necessary to employ mice in the process of recovering the organism. On the 15 occasions here referred to, in which an organism was recovered, it was found to be diphtheroid, of the xerosis group, and identically the same organism. Its cultural growths and reactions were studied on seven solid and 13 fluid media, the latter in several cases prepared according to different authorities in more than one manner, and they were the same throughout. There was a variability in the reaction in milk litmus alone. Owing to the difficulty of obtaining plate cultures Dr. Muirhead had to improve upon the usual methods, as this organism appeared to be a very feeble grower. In order to be successful another point had to be attended to, and no time was lost after the onset of the congestive seizure in withdrawing the blood. It had been found that leucocytosis developed with great rapidity and in an hour or two the phagocytic action of the leucocytes might destroy all the organisms in the blood stream. The observations of Dr. Ford Robertson and Dr. G. D. McRae had demonstrated this fact experimentally and clinical experience confirmed it generally. The organism found on these 15 occasions was not the original bacillus paralyticans of Dr. Ford Robertson and it was never at any time found. Dr. Ford Robertson had, however, altered his views since October of last year and he now stated that there was another form, which he called the bacillus paralyticus brevis, which was also the cause of the disease. This form was found on one occasion in the cerebro-spinal fluid. It was found post mortem and associated with a streptothrix which was found in pure culture in the heart blood. In this case also the Larbert bacillus (Muirhead's diphtheroid) was obtained in pure culture from both the blood and the cerebro-spinal fluid during life. What pathogenic significance was to be attached to this bacillus? It was most improbable that it was a contamination, considering the varied conditions under which it was obtained and the precautions taken. The majority of the cultures were sterile as no plate cultures were made from them and all the healthy controls were sterile. It was, moreover, the only organism found during life in the blood of undoubted cases of general paralysis and it corresponded morphologically with the organism seen so often in the blood films. All the cultural operations were also performed by a trained and experienced bacteriologist. Was the presence of this bacillus in the blood a terminal invasion or only associated with congestive seizures? It was not the former, as it had been recovered from a patient who was going about at large in good general health though enfeebled in mind. It was undoubtedly most often and most easily obtained during congestive seizures, but as it had been obtained at other times its presence in the blood indicated something more than a relationship to congestive seizures alone. Was it, then, the cause of general paralysis? While it probably played an important part in the symptomatology of general paralysis it could not be asserted that it was the cause. It would appear from these observations that diphtheroid bacilli might possibly play an important part in the symptomatology not only of general paralysis but of other forms of acute insanity as well, and it was possible that this group produced toxins which acted in a special manner on the nervous system.

Dr. F. W. MOTT read for Dr. J. P. CANDLER (Claybury) an account of

An Investigation into the Incidence of Diphtheroid Organisms in General Paralysis of the Insane,

in the course of which Dr. Candler said that he wished to state the result of a research into the frequency of diphtheroid organisms in general paralysis and other forms of insanity, in which he had been engaged for about one year; but first it was of interest to state that reference to the literature showed that there was hardly any part of the human body where diphtheroid organisms had been obtained by Dr. Ford Robertson in cases of general paralysis from which other observers had not already been able to obtain similar organisms in cases free from any semblance of insanity. His own investigations had comprised: (1) examination of the blood, cerebro-spinal fluid, respiratory, alimentary, and genito-urinary systems of the cadaver; (2) the examination of the urine and urethras during life; and (3) the examination of the blood and cerebro-spinal fluid during life. Briefly the results were as follows. From post-mortem material he obtained diphtheroid bacilli in three out of 25 cases of general paralysis (or 12 per cent.). From cases of insanity other than general paralysis he obtained diphtheroid organisms in four out of 59 cases (or 6·6 per cent.). From the urine of 26 cases of general paralysis examined during life he obtained a diphtheroid bacillus in two (or 7·6 per cent.). From the urine of other cases of insanity he obtained a diphtheroid bacillus once out of 28 cases examined (or 3·5 per cent.). From the urethras of general paralytics he obtained diphtheroid bacilli in five out of 31 cases (or 16 per cent.); from the urethras of other forms of insanity six out of 44 cases (or 13·6 per cent.). The total number of cases examined was 223, of which 82 were cases of general paralysis. The total incidence of diphtheroid bacilli in general paralysis was 12·2 per cent., compared with

8·4 per cent. in cases of other forms of insanity. These figures were not meant to be taken as of true statistical value as the number of cases examined was not sufficient for that purpose, but they helped to confirm the findings of Eyre and Flashman who in a somewhat similar investigation found diphtheroid organisms present in 16·6 per cent. of cases of general paralysis, as compared with 17·6 per cent. of other forms of insanity. With respect to the examination of the blood and cerebro-spinal fluid of living subjects, he had examined the blood of 24 cases of general paralysis on 41 occasions by withdrawal of from five to 20 cubic centimetres of blood from the basilic vein. He had been unable to obtain a diphtheroid organism in culture from any of his cases, nor had he succeeded in obtaining such from the cerebro-spinal fluid withdrawn by lumbar puncture, which fluid he had investigated in nine cases of general paralysis and one of tabes dorsalis. He had, however, on a few occasions obtained growths in the forms of isolated colonies of different kinds of bacteria upon the agar plates which had been prepared from the centrifugalised deposit of broth culture of the blood, though the initial flask had remained sterile, and he thought that the liability to external contamination by this method was very considerable. Therefore, considering the ubiquitous nature of diphtheroid organisms, he was of the opinion that with such an elaborate method caution must be exercised before it was definitely stated that an organism so obtained did actually come from the circulating blood. With respect to the alleged improvement stated to have occurred in general paralytics as the result of treatment by the new vaccine, it might be mentioned that Dr. Lewis C. Bruce[1] claimed to have greatly benefited two cases of marked general paralysis by inoculating them with defibrinated blood taken from a case of general paralysis in the second stage of the disease. Again, temporary improvement of a greater or less degree was stated by Dr. Ford Robertson in May, 1903, to have occurred in certain cases treated with anti-diphtheritic serum, although in his later papers he claimed that his organisms were special and distinct species of the diphtheroid class. Moreover, it must be remembered that remissions were not infrequent during the course of general paralysis. It was possible, therefore, that the improvement which was stated to have followed the use of the new vaccine might be found to be only of a temporary character as in the previous instances, but time alone could decide. In view of the above considerations he felt justified in suggesting that whereas it was possible that diphtheroid bacilli, in conjunction with several other species of micro-organisms, might help to undermine the constitution of persons suffering with general paralysis, and thereby to hasten the progress of the disease, sufficient evidence had not yet been produced to warrant the statement that a particular species of this group was endowed with specific pathogenic and paralytic properties.

The PRESIDENT of the section thanked Dr. Robertson and Dr. Mott (on behalf of Dr. Candler) for their papers and invited discussion on them.

Dr. P. W. MACDONALD (Dorchester) inquired whether Dr. Candler had attended the recent meeting of the Medico-Psychological Association at which Dr. Ford Robertson and Dr. McRae had given the results of their latest researches.

Dr. C. MERCIER (London) considered that the presence of micro-organisms in general paralysis seemed more than a coincidence but that the subject must still be left in the hands of expert bacteriologists.

Dr. D. YELLOWLEES (Glasgow) was not surprised that varying opinions prevailed as to the rôle of bacilli in cases of general paralysis and he thought that important discoveries were close at hand.

Dr. ROBERTSON replied that at present he was only collecting facts.

[1] Brit. Med. Jour., 1901.

DENTAL SURGERY.

WEDNESDAY, AUGUST 1ST.

Mr. J. MCKNO ACKLAND (Exeter), the PRESIDENT of the section, in opening the proceedings, referred to his advocacy of the establishment of the section of Dental Surgery as long ago as 1889. The previous record of the section was an excellent one and much had been done to elucidate the far-reaching consequences of oral sepsis. Too much stress could scarcely be laid on the supreme importance of not only efficient masticatory apparatus but oral hygiene in the present open-air treatment of pulmonary tuberculosis, and if proper and careful attention were directed to this point it was not unreasonable to presume that the increased efficiency of nutrition would still further increase the number of cured cases. The increasing amount of dental caries in persons of all social grades was a matter of national importance, and, to quote so eminent a physician as Professor William Osler, "more physical degeneration is caused by defective teeth than by alcohol." Mr. Ackland then alluded to the importance of the subject they were about to discuss and called upon Dr. G. F. STILL (London) to open a discussion on

The Causes, Effects, and Treatment of Dental Disease in Children

from the point of view of medicine, announcing that Mr. EDMUND OWEN (London) would open the subject from the surgical and Mr. J. G. TURNER (London) from the dental side.

Dr. STILL said that caries of the teeth was an important cause of ill-health in children and one which was liable to be overlooked; the converse was also true that ill-health in children was a cause of dental decay. Decayed teeth interfered with the proper assimilation of food, and such interference was most serious in childhood when growth and development, physical and mental, should be at their greatest activity. Any widespread prevalence of dental decay in childhood was a menace to their national physique. A series of observations taken amongst children brought to hospital for other conditions showed that 82·7 per cent. of children between five and 12 years of age had decayed teeth, and 39·8 per cent. of children between two and five years of age; some of these children had from ten to 15 carious teeth. Parents as well as medical men ought to know how much a child's health might suffer from decayed teeth. The commonest evil therefrom was digestive disorder; and this in a child was often shown by loss of flesh, loss of appetite, enlargement of the abdomen, and sometimes by frequent pains in the abdomen. Anæmia was also sometimes due to dental caries, perhaps in consequence of chronic poisoning from the foul condition of the teeth. Decayed teeth also formed a nidus for micro-organisms which might set up inflammatory disorders in the mouth or pass into the blood or into the neighbouring lymphatic glands and produce more serious disease. It had been thought that tuberculous disease of the glands in the neck might arise from infection from decayed teeth; the tubercle bacillus had been found in decayed teeth; and enlargement of glands was very frequently associated with decayed teeth, but it was very uncertain how often any tuberculous infection was due directly to the teeth for there were other—and probably much commoner—sources of infection; but there could be little doubt that indirectly the swelling of glands which certainly resulted from dental caries was a powerful predisposing cause of tuberculous infection of these glands. Decayed teeth were also a cause of frequent headaches in some children, and occasionally gave rise to more troublesome nervous disorder, such as habit spasm and in a few recorded cases even epilepsy. Lack of proper cleaning of the teeth was one factor but not the only one in the production of dental decay. Considerably more than 50 per cent. of children of the hospital class at the school age had never cleaned their teeth in their lives. But it had been shown that children of the well-to-do classes were just as liable to dental caries as the poor and less well-cared-for children; and whilst the most scrupulous cleanliness would not always prevent decay, complete ignorance of a toothbrush was not inconsistent with a perfect set of teeth. There were differences in the teeth of different children; in one the enamel was thicker and more perfectly formed than in another, and this difference might be congenital and perhaps peculiar to particular families, so that in the children of one family the teeth were more resistant to decay than in another; but imperfect development of the teeth, particularly of the enamel, might be due to a preventable disease—namely, rickets; and any profound disturbance of nutrition, such as was produced by improper feeding in infancy, might interfere with the perfect development of the teeth so that they were more liable to decay. Diet had some influence in producing decay in the teeth after they had already been cut; but probably this influence was chiefly indirect; any food which caused digestive disorder thereby altered the secretions of the mouth so as to favour the action of bacteria in producing acid fermentations and eroding the enamel. Sweets, which were generally supposed to injure

the teeth, probably did so only in this indirect manner, or given at wrong times or too frequently were very liable to upset digestion. The prevention of dental caries must date from earliest infancy; if 39·8 per cent. of children between two and five years of age had decayed teeth it was evident that the mischief was often present before the school age and no dental inspection of schools could take the place of parental care in preventing this evil. Proper feeding in infancy and the prevention of rickets and of digestive disturbance in early life were of prime importance. The teeth should be cleaned twice daily, especially in the evening, from their earliest appearance. There was a most erroneous idea current that decay of the first teeth was of little importance, whereas it was probably more liable to injure the general health and the physical development than at any other time of life. If parents would take their children regularly to a dentist for inspection two or three times a year, and if dentists would see that decayed first teeth were stopped whenever possible, there would be less ill-health and difficulty of digestion in early childhood and probably also less decay in the permanent teeth.

Mr. EDMUND OWEN said that one of the chief causes of dental disease in children was faulty feeding. It was a most unfortunate thing that at the present time so many mothers were unable or unwilling to suckle their children. In children who had been improperly fed, when at last the teeth came through the gum they were frequently faulty in shape, appearance, and power of resistance. In other words, the child was rickety. The milk teeth being for the most part formed before the child had acquired the rickety taint might come through full of promise, but the teeth of the permanent set only stood a poor chance of reaching histological perfection. Mr. Owen insisted that all advertised sterilised foods were bad for children's teeth, and if a child must be brought up on cow's milk, the milk should not be dealt with in any way likely to destroy that living something which was essential for the well-being of the child. As the child grew up his diet improved, meat-juice, vegetables, and fresh foods were added, and it would no doubt be better for him if the meat was freshly killed and not previously stored for six weeks or more in a frozen condition. Mr. Owen proceeded to draw a lesson from the excellent dentition of old British skulls. The best flour for bread was that made of wheat coarsely ground between the old-fashioned mill-stones. This type of bread was in use in East Anglia when Mr. Owen was a boy; it was made in ovens heated with wood faggots, and the loaves were put on the glowing ashes. Such bread not only had hard good crust but the bread itself was crisp and remained fresh when cut across for many days. This bread produced a proper and healthy physiological stimulus to the jaws, but upon modern bread crust was difficult to find, and children were brought up on paps, and patent foods, and messes evolved in the laboratories and for the benefit of the advertising vendor. The manufacturer of drugs, the mere tradesman, had of late taken upon himself to teach medical men how to prescribe and the vendor of patent foods dictated to the profession and the public how children should be fed, and the profession and the public allowed themselves to be led. The general surgeon met with two specially disastrous effects of dental disease, the more serious being the acute septic inflammation of the periosteum and bone starting from the germs incubated in a carious tooth. Such teeth required removal, the presence of a painful swelling being the indication for extraction. Another serious effect of dental disease was inflammation of the cervical lymphatic glands. Sometimes the lymphoid elements of the glands were able to deal with the bacteria and small harm resulted, but frequently the glands were unequal to the task and an acute suppuration might occur large out of all proportion to the original lesion. Behold how great a matter a little fire kindleth! Prevention of dental disease in children was a better study than its treatment and in Mr. Owen's opinion the so-called "high" civilisation of the present day was accountable for most of their dental troubles.

Mr. J. G. TURNER dealt with the pathology of defective teeth, illustrating the various points by lantern slides. Hypoplasia or imperfect development of teeth was most conspicuous in enamel. The various forms could be conveniently classed according to their origin. Hypoplasia of (*a*) malnutrition, (*b*) inflammatory hypoplasia, (*c*) traumatic, (*d*) congenital syphilitic, and (*e*) congenital. The first was the most common; the enamel once formed was incapable of renewal or repair and the formative cells once injured rarely regained their full functional activity. The teeth bore the impress of the pathological process, the position of the deformity on the tooth corresponding in each to the stage of development at which the pathological change occurred. This form of hypoplasia was therefore symmetrical. The amount of damage to the forming enamel varied in degree, in some instances causing almost complete absence of enamel and in others merely causing a dull white or brownish stain. In these dull patches the fibrous character of the enamel was well seen. In some cases a series of grooves ran across the tooth, apparently corresponding to exacerbations and remissions of the exciting cause. At times a line of pits not fused into grooves was seen. Mr. Turner described the microscopical changes in the teeth and proceeded to say that all sorts of "infant foods" seemed to be causative, and plumpness and tranquility of the baby was no criterion of future healthy teeth. Among the histories of early hypoplasia Mr. Turner had investigated three children who had been breast fed and had all suffered continuously from diarrhœa and in each instance the mother's mouth was very septic. All persons with hypoplasic teeth did not give histories of rachitis and all rickety children did not develop hypoplasic teeth. Still, Mr. Turner was inclined to think there was obvious community in the origin of both rachitis and hypoplasia of the teeth. Hypoplasia due to specific fevers was a special form of the hypoplasia of general nutrition. Inflammatory hypoplasia was frequently asymmetrical and in permanent teeth generally owed its origin to inflammatory processes affecting the temporary tooth which was situated immediately above the affected permanent tooth. The inflammatory process left its mark on the microscopical structure of the affected tooth. Bending and irregularity of the dentine was seen, probably due to inflammatory pressure. So-called mercurial teeth might be a form of generalised inflammation, but it was difficult to realise that mercury was ever given in such doses as to cause the results attributed to it. Traumatic hypoplasia differed from inflammatory hypoplasia but little. Syphilitic hypoplasia was well known, but much smaller and less marked degrees of hypoplasia were suspicious of congenital syphilis. The teeth were frequently small, wanting in contour, although the enamel might have a good finish. He had confirmed Darier's observation of a small boss of enamel projecting from an imperfectly developed crown but having a normal enamel surface. Congenital lesions of temporary teeth had not as yet been met with. Mr. Turner referred to an instance of congenital hypoplasia which he thought was unique; it affected five generations. Dental caries was next considered; it was a disease of early life and newly erupted teeth were more susceptible than older teeth. He thought, despite what had been said to the contrary, that there was no disease in which both cause and prevention were so clearly demonstrated. By clinical observation and experiment stagnation of carbohydrate food had been demonstrated to be the predisposing cause and the acid, mainly lactic, produced by bacteria to be the acting cause. Surgically clean teeth could not decay: no bacteria, no caries; no pabulum, no caries, might well be stated as axiomatic. Various accessory causes no doubt contributed but the main underlying fact remained the same. The more injurious foods were the agglutinative carbohydrates and those containing monosaccharides. The former clung to the teeth, the latter were most easily fermentable. Fine flour and biscuits, unwashed starchy foods, as badly prepared rice, &c., were bad. Practically all hypoplasia and dental caries as well, together with oral sepsis in children, could be referred to faulty and improper food, and the prevention of dental caries in children lay rather in the province of feeding than the actual treatment of the disease when established. Extraction of temporary teeth when it was impossible to render them either painless or aseptic was indicated, and the attempt to save by filling a temporary tooth that was septic was improper; more deleterious effects were produced by retaining such teeth than by their loss. Finally, in public health dental disease takes its place with bad housing, feeding, and clothing as one of the root factors of degeneration.

Dr. EDMUND CAUTLEY (London) attached great importance to hereditary predisposition as a potent cause of malnutrition of teeth and their subsequent liability to decay. The delicate, tuberculous, syphilitic, or alcoholic mother was not liable to have children with sound and well-formed teeth. He alluded to the importance of attention to cleanliness and also to the mutual causation of carious teeth and digestive disturbances.

After a few remarks from Dr. G. A. SUTHERLAND (London),

Mr. K. W. GOADBY (London) suggested that a common error of physicians was to ascribe caries of the teeth to digestive disturbances rather than to pathological conditions of the mouth. In considering the effect of dental diseases upon the gastro-intestinal tract it was important to distinguish between diseases of the soft parts of the mouth and diseases of the hard tissues or teeth. The former were the originators of the greatest amount of toxin production; the latter, destroying the functional character of the teeth, promoted disease in a more mechanical way. At the same time defective teeth frequently led to inflammation of the jaws and soft tissues. Mr. Turner had referred to the difference in fermentability of the mono- and polysaccharides; it was, however, important that the di-saccharide cane sugar was very resistant to fermentation by the majority of the bacteria inhabiting the mouth, as was also starch; maltose, on the other hand, being the chief sugar derived from starch by the action of ptyaline, was one of the most fermentable of all. Glucose or maltose invariably showed an acid reaction in neutral solution when inoculated with mouth bacteria within six hours, whereas cane sugar required 48 hours or more; this was of great moment in the production of dental caries in children as usually, except at night, the fragments of one meal were removed by the next before actual fermentation had progressed very far. Ulcerative stomatitis and pyorrhœa alveolaris showed a remarkable similarity in their bacteriology, histological character of the pus, and at times in their clinical aspects, and he was inclined to regard them as variants of the same disease.

Mr. ARTHUR W. W. BAKER (Dublin) confirmed from his own experience the production of hypoplasia by whooping-cough and from influenza. Hypoplasic teeth were not more prone to caries than normal teeth; in fact, arrested caries was more common in these teeth than in normally developed ones.

Mr. R. DENISON PEDLEY (London) made a few observations on the medical aspect of the question and discussed the various carbohydrate food-stuffs and their relation to dental caries.

Mr. W. R. ACKLAND (Bristol) submitted that the prevention of caries in young children rested much more with the parent, nurse, and medical man than the dental surgeon who only saw the child when caries was established. The medical man must educate the mother and the nurse. Children were frequently allowed the pernicious habit of eating biscuits or sweets in bed last thing at night. Want of cleanliness was, however, only one cause of decay.

Mr. C. EDWARD WALLIS (London) said that he had made a number of observations on the relation of dental disease and epilepsy. Dental treatment of epileptic children was commenced two years ago and the method of drastic treatment had been adopted. In making careful examination into the statistics there was, however, no apparent diminution in the incidence or severity of the fits. In a large County Council school it had been unmistakeably shown that the children with the lowest physical and mental development were those who were classed as suffering from the largest amount of dental disease.

On the motion of the PRESIDENT of the section the discussion was adjourned until Thursday, August 2nd.

THURSDAY, AUGUST 2ND.

Mr. P. SIDNEY SPOKES (London) stated that some years ago he had collected statistics of hypoplasic teeth which showed that the incidence was less common among the children who were better fed during the first three years of life than among the very poor who were afterwards found in parochial schools. With regard to treatment, among dental surgeons who took a wider view of disease than the saving of one or two teeth there was a strong feeling in favour of extraction whenever there was the possibility of danger to the health of the individual; at the same time it was only fair to point out that in many cases the temporary teeth might be made functional by "stopping," or by the application of nitrate of silver, in cases of superficial decay. The early discovery and prompt treatment of caries could only be secured by systematic periodical examination with dental probe and mirror.

Mr. J. F. COLYER (London) said he would confine himself entirely to the subject of treatment. The most important thing to remember was that children's mouths to be kept clean must be kept functional. First, then, mouth breathing tended to promote inflammation of the gums in the front of the mouth, with the sequelæ of caries, suppuration, &c. Promotion of nasal breathing was therefore to be insisted on. Secondly, with regard to treatment, filling might be performed when the pulp was not exposed but where this obtained extraction was the better course; in fact, the only cases where Mr. Colyer was inclined to adopt conservative treatment were in the second temporary molars of children under the age of six. The cases, however, which demanded most serious consideration were those in hospital practice where children were brought with the whole of the deciduous molars hopeless wrecks. If the first permanent molars were in place the best treatment was the removal of all the deciduous molars, and if one or two of the teeth be opposed by teeth not yet decayed the removal of these also was indicated, the loss of their antagonists in the corresponding position of the opposite jaw destroying their function and allowing them to either act as the initial points of further decay or as the starting place of oral sepsis. The question of oral sepsis in all its branches must be weighed in the balance against the loss of a few temporary teeth and in his (Mr. Colyer's) opinion the former far outweighed the latter.

The discussion was continued by Mr. F. COLEMAN (London), Mr. J. H. GIBBS (Edinburgh), Mr. F. J. BENNETT (London), Mr. J. LEWIN PAYNE (London), Mr. W. RUSSELL BARRETT (London), Dr. J. MILLIGAN (Barrow-in-Furness), and Mr. G. A. PEAKE (Cheltenham).

The PRESIDENT of the section in summing up the discussion stated that he was most in agreement with the speakers who, although admitting the necessity of extraction of temporary teeth at times, were more inclined to adopt conservative measures when possible. With the suggestions urged as to improvement he was in hearty accord and trusted that the discussion would bear considerable fruit in the prevention of dental disease in children. In the absence of Dr. STILL and Mr. OWEN the PRESIDENT called upon Mr. TURNER, who opened the discussion for the dental surgical side, to reply.

Mr. TURNER, in replying to the discussion, said that two main questions appeared to have been raised in the discussion, the relation of diseases of the stomach to diseases of the teeth and the all-important question of treatment of temporary teeth. If the stomach did affect the teeth how was the influence brought about; was it by the eructation of acid from the stomach, for if so the amount of acid required would cause profound pathological changes in the œsophagus and pharynx. Was the influence, then, by an alteration in phagocytosis; if so, only the necks of the teeth were likely to be affected and caries in children more frequently attacked the crowns. Was it by alteration in the salivary secretions; perhaps, but neither dental surgeons nor physicians had any data for such a supposition, especially as the acid of lemonade acted as a mild deterrent to dental caries. The co-relation of anæmia and dental caries was apparently of the same order and it was more probable that the anæmia was the direct effect of the caries rather than the reverse. With regard to treatment, he adhered to the formula—any tooth which could not be rendered painless and aseptic should be removed, and Mr. Colyer suggested that functionless teeth should also be removed, as a functionless tooth at once became a dirty tooth; functionless teeth might be included in the above formula without any difficulty. Experience had taught him that the line of treatment was correct; there was no difficulty in feeding a child even if all but the four first permanent molars had been removed, while the child's health improved on the removal of septic troubles. Mr. Colyer's idea of isolating the first permanent molars by the extraction of teeth in mouths with much caries was good, as temporary teeth without proper opposition or occlusion became dirty teeth. The fact that rickety animals frequently possessed good teeth required more investigation.

Mr. ACKLAND read a paper on

Some Cases of Neuralgia.

The cases were divided into three groups for convenience of description: (*a*) those in which pain in one tooth was referred to another; (*b*) neuralgias and remote affections due to dental irritation; and (*c*) pain in teeth due to affections of other parts. The first class required only a brief summary. Pain was never referred across the median line but was often referred to the opposite jaw on the same side. The patient rarely localised the right tooth; when the pain was referred to the wrong tooth the cavity was usually interstitial.

The cases occurring in class (*b*) were as follows: 1. Supra-orbital and frontal neuralgia, right-sided, together with photophobia, in a male, aged 30 years, cured by removal of septic bicuspid roots on the right side. 2 Supraorbital and ocular neuralgia with occasional photophobia and amaurosis in a female, aged 32 years, on the right side, cured by removal of septic roots (crowned) of lateral canine and first premolar in the upper jaw. 3. Neuralgia, supraorbital and infraorbital, with swelling of the optic disc following the fixation of a crown on a lateral incisor. The symptoms disappeared when the crown was removed. The patient was a well-known medical man. 4. Infraorbital, supraorbital and ocular neuralgia with myopia in a male, aged 14 years, cured by treatment of irritated pulps in incisor and molar region. 5. Otalgia accompanied with loss of hearing associated with lower wisdom tooth. 6. Supra-laryngeal and hyoid area neuralgia associated with inflammation and throat pain associated with right lower unerupted third molar. Several other cases of this class were cited, all being associated with some dental pathology and all clearing up when the cause of irritation in the form of a diseased tooth was removed. Catarrhal affections of the antrum (maxillary), tic-douloureux, glaucoma, and iritis were mentioned as occasionally associated with pain referred to the teeth.

Mr. BENNETT was inclined to the opinion that most of these cases of eye changes associated with pathological dental conditions were due either to toxic disturbances from the local focus of infection or to spread of infection by continuity of tissue.

Mr. GOADBY mentioned a case of antral suppuration in which the optic disc was distinctly swollen and which disappeared on the treatment of the suppuration.

Mr. COLYER remarked that he did not regard the evidence in many of the cases as sufficient to warrant the application of the term reflex; they were in all probability due to toxic or septic origin, particularly one case mentioned in which a muddiness of the iris was observed.

Mr. TURNER said the neuralgia of edentulous jaws was the same as the neuralgia or pain of septic osteitis. The swelling of neuralgia which occurred in bad and persistent cases might occur in the parts to which the neuralgia was referred. There might be an analogy to change of colour in the iris or to deafness, due, perhaps, to reflex hyperæmia of the middle ear.

Mr. COLEMAN said the relation of carious teeth to myopia was very difficult to decipher, but pain in the ear related to carious lower molars might have a developmental significance owing to the segmental development of the fifth nerve.

Dr. MILLIGAN, Mr. BAKER, and Mr. RUSSELL BARRETT also discussed the cases.

Mr. ACKLAND in his reply thought that a toxic origin hardly explained Case 3, where the symptoms disappeared in half an hour after the tooth was removed. The swelling of neuralgia was possibly caused by sympathetic vaso-dilatation.

Mr. BAKER read a paper on

Difficult Eruption of the Third Molar.

Difficult eruption of the third molar, especially in the lower jaw, was constantly brought to the notice of surgeons and dental surgeons, and the present ideas on etiology and treatment were largely based upon the work of the late Mr. Salter. This observer pointed to disproportion in the size of the teeth and the jaws that held them as not only producing irregularity of the teeth in the front of the mouth but often so little space was allowed for the last molar, that its advent was postponed or prevented for a long period. The irritation and infiltration of the soft parts producing trismus were generally due to the nipping of the soft tissues by the oncoming crown against either the coronoid process or another tooth. That the above hypotheses comprise a large number of cases Mr. Baker was prepared to admit, but there were still a number of instances in which too much importance would seem to be attached to overcrowding and pressure in the production of pain. Precise knowledge as to the causes which impel the tooth to the surface would probably modify their ideas on the subject. Mr. Baker then proceeded to cite two instances in which pain and difficulty to close the mouth were associated with the non-eruption of third lower molars in normal position and without the complication of crowding. In one case the third molar remained in the region of the socket of the second molar for ten years, all the time keeping up general irritation. In the second case the eruption of a third molar in a male, aged 20 years, was attended with acute paroxysmal pain, referred to the usual neuralgic foci. Both first and second molars had been previously removed, so there was no crowding to prevent the eruption of the teeth. Subsequently, as the pain did not subside the lower third molar was removed and the pain, especially that of the inferior division of the fifth nerve, disappeared for a month but then returned. The pain continued with varying intensity until the upper third molar cut the gum. Mr. Baker was inclined therefore to regard the usual text-book statement that the neuralgias arising from the eruption of third molars were due to the difficulties caused by crowding was not a sufficient explanation, as in both the cases recorded no opposition to the eruption of the tooth causing the neuralgia was in operation and yet the pain was intense and only relieved by the extraction of the offending tooth.

Mr. COLYER was in complete agreement with Mr. Baker. He referred to specimens of malposition of the third molar in the museum of the Royal Society of Medicine (Odontological Section): one in a gorilla with the supernumerary third molars in the ascending ramus of the jaw, the other a third molar situated in the sigmoid notch in the human subject.

Mr. J. H. GIBBS (Edinburgh) was much interested in the paper and agreed with Mr. Baker that crowding and insufficient room for eruption were insufficient to account for the pain in a number of this class of case. The majority of his cases had occurred in women.

Mr. PAYNE mentioned a case in which eruption of a third molar in the mandible of an elderly patient caused acute pain, local and referred. The root of the tooth was implanted in the ascending ramus of the jaw and the crown was entirely covered by gum. It was important to note that the eruption of the upper third molar was rarely attended with such acute pain as the lower third molar, a fact which might be associated with the freer blood-supply and less compact tissue of the upper as compared with the lower jaw.

Mr. BENNETT (London) thought that some of the points he proposed to discuss in his paper on Friday had a distinct bearing upon the question.

DISEASES OF CHILDREN.

FRIDAY, AUGUST 2ND.

The proceedings commenced with a discussion on

Lumbar Puncture: its Diagnostic and Therapeutic Value,

which was opened by Dr. E FARQUHAR BUZZARD (London). He said that in the course of the past 16 years the literature relating to this subject had become very extensive as the method was applied to the investigation of various diseases, among which tuberculous meningitis and tabes dorsalis were conspicuous. In regard to the technique of the operation he recommended the use of a needle of the hypodermic type, preferably of platinum, the fluid being allowed to run from its end without suction, aspiration being likely to lead to irritation of nerve-roots. The puncture should be made in the third lumbar interspinous space (on a line with the crests of the ilia) while the patient lay on his right side with the spine flexed, surgical cleanliness being carefully observed. The quantity of fluid removed might be from 15 to 40 cubic centimetres. If it ran too quickly or too much was withdrawn there was danger of cardio-vascular and respiratory disturbance, with headache, nausea, and vomiting. The normal fluid was clear, watery, and colourless, having a low specific gravity and containing traces of chlorides, sugar, and serum globulin. It flowed at low pressure, escaping drop by drop. So many minor matters interfered with the correct working of a pressure gauge that he did not think it afforded more trustworthy information than the manner in which the fluid escaped from the open tube. Pathologically the fluid showed variation from this standard in an increase in the amount of albumin and the presence of cellular elements, besides alterations in chemical constitution and the presence of various mico-organisms. These occurred mainly in diseases of the nerve-centres, but in uræmia there were found to be diminution of chlorides, increase in sulphates and phosphates, and also of albumin and the presence of urea. In diabetes there was increase in the quantity of sugar and where katabolic processes in the nervous system were going on cholein was present. In inflammatory conditions a grey

translucent clot formed in the fluid on standing, which in purulent states was adherent to the containing vessel and more easily broke up. Normally the fluid deposited but few cells, two or three in the field of an oil immersion lens. These were much increased in disease. The polymorphonuclear cells predominated in cerebro-spinal fever, while in most acute local states the lymphocytes were more numerous. With congestion and œdema of the meninges the tension of the fluid was raised, so that it jetted out of the needle. These features were of value in discriminating between the true and pseudo-meningeal states in a young child. Both in children and adults syphilis was associated with lymphocytosis. In cases of suppurating otitis media with cerebral symptoms an examination of the fluid might decide between a localised abscess and diffuse suppuration of the meninges or between a toxæmia and meningeal suppuration such as occurred in cerebro-spinal fever. As regards bacteriology, the detection of the several organisms not only assisted diagnosis but afforded opportunity for preparing suitable vaccines. Lymphocytosis occurred usually before micro-organisms were to be detected. In regard to treatment, the value of lumbar puncture was mainly in forwarding remedial measures by aiding exact diagnosis. Decompression by evacuating fluid might be of value in some cases, but he did not approve of it in cerebral tumour. So far, in hydrocephalus relief had only been afforded in a few cases and for a brief period, and in acute meningitis the beneficial effect was not permanent in tuberculous cases; some instances of posterior basic disease ran a favourable course after lumbar puncture. Some advantage might accrue from the removal of toxic fluid, which might account for improvement in cases of uræmia with coma, convulsions, and Cheyne-Stokes breathing, as such fluid exhibited an increased toxicity towards the lower animals.

Dr. F. E. BATTEN (London) based his observations on 42 cases in which lumbar puncture had been performed on children between one and two years of age. In one instance no fluid could be obtained in four attempts, and in all but three, in whom the sitting position was adopted, the operation had been performed with the patient lying on the side. He divided the cases into 12 groups. 1. Of 12 cases of tuberculous meningitis the fluid was clear in 11 and opalescent in one. In all tension was raised, the amount of albumin was increased, and the number of leucocytes were considerable, lymphocytes representing 91 per cent. of the whole. Tubercle bacilli had been found in the clot. 2. In six cases of cerebro-spinal meningitis the fluid was turbid and the cells were increased, polymorphonuclear cells representing 98 per cent. The diplococcus was found in all. Four recovered completely and one died subsequently from diphtheria, the evidence of thickening of the meninges being found post mortem. 3. Three cases of pneumococcic infection. 4. One case of streptococcic infection. 5. Six cases of convulsions, with two immediate recoveries. 6. Intracranial tumour (three cases); in one the quantity of fluid had increased to 18 ounces at the fourth tapping. 7. Hydrocephalus. The fluid was clear and was of specific gravity 1010, with increased albumin. 8. Cerebral diplegia. 9. Anterior polio-myelitis. The fluid was clear and sterile. 10. Congenital syphilis showed definite increase of lymphocytes. 11. Acute ataxia (two cases). The fluid was normal. 12. Spinal caries. Clear rhombic crystals were present. Dr. Batten considered lumbar puncture of value in confirming the diagnosis in tuberculous and cerebro-spinal meningitis, both by the distinctive cocci and differential cell count. Therapeutically it relieved intracranial pressure was easy of performance, and free from ill-effects.

Professor W. D. HALLIBURTON (London) said that the source of the cerebro-spinal fluid was the epithelium of the choroidal plexuses, together with exuded lymph, since it contained waste products of nervous activity. The chief variations were in pressure and the chemical and cytological characters. The chief chemical features were the presence of a small amount of protein which was increased in pathological states, a small and variable amount of sugar, and cholein derived from lecithin in the disintegration of nervous matter and present only in organic lesions.

Dr. F. C. EVE (Hull) suggested that the flow of cerebro-spinal fluid was dependent on vascular tension and could be promoted by slight pressure on the veins of the neck.

Dr. J. PORTER PARKINSON (London) said that lumbar puncture would assist the diagnosis between pneumonia and meningeal or cerebral disease with marked cerebral symptoms.

Dr. E. ATHOLE ROSS (London) described his experience in the technique and diagnostic features of the various cells found. He recommended Leishman's stain.

Dr. PURVES STEWART (London), after criticising the ordinary methods of cell counting, said that an accurate estimate could be arrived at by taking the cerebro-spinal fluid, adding a fixed proportion of a staining-agent to it, and counting the cellular elements in a special counting chamber, just as was done in the case of blood corpuscles. Owing to the scantiness of the cells in normal cerebro-spinal fluid a larger counting chamber was required than in the case of blood. Fuchs and Rosenthal had devised an excellent modification of the Thoma-Zeiss chamber for the purpose which Dr. Stewart had been using for several months. In health the number of cells per cubic millimetre varied from one to four or five, such cells being lymphocytes, with an occasional endothelial plate, never any polymorphs. In a series of eight successive cases of tabes the average number of lymphocytes was 72·3; in four cases of general paralysis of the insane the average was 190·4. In seven cases of cerebro-spinal syphilis the average was 37·6, and so on. The figures thus obtained corresponded to what had been found before with the old centrifuge method, but they were more trustworthy. They demonstrated the well-known fact that, as a rule, the lymphocytosis of tabes and of general paralysis was far greater than that of ordinary syphilitic affections of the central nervous system. This rule of lymphocytosis in tabes was not without exceptions. Dr. Stewart cited a case of well-marked tabes with most of the classic signs, in which the cerebro-spinal fluid on one examination contained only 3·3 lymphocytes per cubic millimetre and a week later a second observation in the same case only showed 11 per cubic millimetre. Dr. D. Ferrier recently had a similar case and Dr. Stewart understood that Babinski had had one also. So far Dr. Stewart had not come across a case of general paralysis without well-marked lymphocytosis. With regard to the significance of polymorphonuclear leucocytes in the cerebro-spinal fluid, their presence was always pathological and indicated an acute process within the meninges. The most marked cases were those of acute suppurative meningitis. Dr. Stewart had counted as many as 28,933 polymorphs per cubic millimetre in a suppurative meningitis, while counts of 200, 300, and 400 were exceedingly common in pneumococcus or diplococcus meningitis. But the presence of polymorphs did not necessarily mean a suppurative infection: it simply meant an acute process. As an acute septic meningitis subsided the polymorphs gradually became replaced by lymphocytes and ultimately even the lymphocytes disappeared as the cure was completed. Lastly, it was interesting to note that a marked polymorph leucocytosis might occur without any organismal infection whatever, as Dr. Stewart had noted within a few hours after injecting sterile salt solution into the cerebro-spinal fluid of monkeys.

Dr. A. GARDNER ROBB (Belfast) spoke of 300 cases of epidemic cerebro-spinal meningitis in which lumbar puncture was performed during unconsciousness due either to coma or induced by chloroform; he used rather a large trocar and cannula as he often had to deal with thick pus. In many cases which were "hanging fire" the operation appeared to start convalescence.

Dr. W. ESSEX WYNTER (London) remarked that the 16 years through which Dr. Buzzard had traced lumbar puncture would not include a case in which the speaker had, so far as he knew, originated the operation in 1889 and which with four others was published in THE LANCET in 1890 under the title "Puncture of the Theca Vertebralis for the Relief of Pressure." Examination, post mortem, showed that in nearly every case described as tuberculous meningitis the real condition was general tuberculosis and this discouraged attempts to relieve the local condition by this means. Then followed the employment of lumbar puncture for diagnostic purposes and later the injection of cocaine or other local anæsthetic for relief of pain. In the spring of the present year a case of sporadic cerebro-spinal meningitis with coma was treated by removal of spinal fluid containing the meningococcus and the injection of a saturated watery solution of acetozone on several occasions with complete recovery.

Dr. REGINALD L. LANGDON-DOWN (London), in opening a discussion on

Precocious Development,

confined his attention to the psychical side and drew the following conclusions. The precocious children were those from whom they drew their great men, that was, those who

advanced the nation intellectually and socially. They might be roughly divided into two groups, the stable and the unstable. The former were well developed, both physically and mentally, and in good order and proportion; the latter were often physically below the average and showed an irregular or one-sided mental development; these cases needed special care and formed the majority of those usually coming under medical attention. From the point of view of the race, a late maturity seemed to be advantageous, and this pointed to preserving slight beneficial variations rather than large ones; from the point of view of the individual, the later-acquired powers of the race might advantageously appear sooner, but this should be in good order and with uniform development. It appears, on the other hand, that anything in the environment likely to produce artificially a premature development of any function or organ was harmful, particularly so in those cases where there was naturally a tendency to extreme deviation from the average; while a careful discipline and social restraint were needed to save some of the extreme cases from social failure. On the other hand, the judicious guide would give the bright youth of the stable class free play as to his line of study, while preventing him from straying over too wide an area, and at the right moment, when his choice was made, he would endeavour to stir the youth's energies and to fire his enthusiasm to the utmost.

Dr. LEONARD G. GUTHRIE (London) said that as regards the physical side attention was drawn to the accumulation of evidence of intimate functional relationship existing between the pituitary, the thyroid and thymus glands, the cortex of the adrenal glands, and the testes and ovaries. All seemed concerned in some mysterious way with bodily growth and sexual activity. Even the pineal body seemed to have a share. Abnormal conditions suggestive of hyperfunction of one or another of these glands accounted for gigantism and acromegaly, precocious obesity, abnormal strength and muscularity, premature sexual development and hirsuties on the one hand, whilst hypofunction seemed responsible for dwarfism, muscular atrophy, myasthenia, sexual infantilism, and general alopecia. The coincidence of tumour conditions of more than one of these glands and of atrophy of one associated with hypertrophy of another was further proof of mutual interaction between them. The exact relationship was obscure. Perhaps a mutual check action was exerted by all on each other. Tumour conditions of the pituitary body were associated with gigantism in early life and acromegaly in adolescence. Sexual infantilism or impotence and loss of hair accompanied each condition. Tumours of the pineal body had in two cases been present with premature development of the sexual organs and hirsuties. The thymus gland seemed concerned with osseous growth. Its extirpation in young cats and dogs was followed by rickety changes and stunted growth. Its hypertrophy was associated with acromegaly, myasthenia, and lymphatosis. Abnormalities of one or all of the above named glands might be responsible for achondroplasia. Enlargement of the thyroid occurred in pregnancy and might coincide either with precocious puberty and menstruation or with cessation of menses. Thyroidal atrophy was the cause of myxœdema, dwarfism, and sexual infantilism. Extirpation of the thyroid and also castration were followed by enlargement of the pituitary body. Tumours of the suprarenal cortex (hypernephromata), especially if malignant, were accompanied by precocious puberty, hirsuties, and extreme obesity with or without premature development of sexual organs, or by remarkable physical, muscular, or sexual development. In addition to gigantism two distinct classes of precocious physical development were described: (1) the precociously obese type; and (2) the muscular or "infant Hercules" type (Parkes Weber). By precocious obesity was meant the obesity commonly seen in middle-aged men and women and not merely excessive plumpness. The fat was evenly distributed and also existed as pads, humps, and rolls in various parts. Stellate venules and "lineæ gravidarum" were common. The children resembled stout middle-aged persons in miniature. Intelligence as a rule was precocious. Of ten examples of this type seven were female and three male. In six of the female cases hypernephromata was found. In one no glandular tumour of any kind was discovered. In two of the three male subjects hypernephromata were present. In one no post-mortem examination was held. The muscular or infant Hercules type was characterised by remarkable growth of stature and muscular strength without obesity and by precocious puberty with hirsuties and virile condition of the sexual organs. This type seemed to be confined to the male sex, unless certain cases of precocious maternity were analogous. 11 examples of the muscular type were cited. In two of these hypernephromata were discovered after death. In two tumours of the pineal gland were found. In one there was a testicular tumour, removal of which was followed by loss of hair on the face and resumption of child-like appearance. In six no post-mortem examination was recorded. One of the latter (Mr. Hugh Lett's patient) was still alive and aged eight years. Photographs of examples of the obese and muscular types of precocious development were exhibited. Hypernephromata might be attended by true precocious development of the generative organs and hirsuties without obesity. Finally, in females true precocious puberty might be caused by ovarian tumours, removal of which (as in the case of removal of testicular tumours in males) was followed by "reversion" to child-like conditions. The prognosis in all but the latter cases was bad. Giants usually died young. The eldest of the muscular and obese children was 14 years and the youngest 14 months at the time of death. The average duration of life was from five to six years.

Dr. G. A. SUTHERLAND (London) also spoke.

ELECTRO-THERAPEUTICS.

WEDNESDAY, JULY 31ST.

The proceedings were opened by the PRESIDENT, Dr. LEWIS JONES (London), who, after paying a generous tribute to Professor Stephane Leduc of Nantes for the excellent work he had done in medical electricity, called upon the latter to read a paper entitled

"The Ions in Medicine."

Professor LEDUC, after indicating that electricity for medical purposes and the electrolytic process were first applied in England, pointed out how all electrical applications to the human body were essentially electrolytic processes, and that such applications were attended by the passage of ions, the nature of which depended on the solution used to saturate the absorbent covers of the electrode, or if plain water were used the application resolved itself into an electrolysis of a normal saline solution. The density of the current employed was limited by the caustic action of the electrolytic products on the skin which took place when the current density was high. To overcome this tendency he considered that it was very important to use from 15 to 20 thicknesses of absorbent material well soaked in the electrolytic solution between the electrode—which must be very flexible—and the skin. The electrodes must be carefully adapted to the surface and maintained by even pressure. The indifferent electrode should be moistened by pure water only, so as not to introduce any undesired ion into the current. Among the indications for this form of medication Professor Leduc mentioned neuralgias and also pericarditis where iodine ions were employed. In such cases iodine appeared in the saliva in from 40 to 60 minutes. Professor Leduc concluded his paper by remarking on the moral triumph for medical electricity attained by the inauguration of a section devoted to that subject at the annual meeting of the British Medical Association.

Mr. A. D. REID (London) read a paper on

The Use of the Cryptoscope in Operations for Renal Calculi,

in which he said that his plan was to use a special form of sterilisable cryptoscope by means of which the kidney was examined after being drawn out through the wound. The position of small calculi was easily seen and they could be removed with very small incisions, rendering the splitting up of the whole kidney unnecessary. Lantern slides were shown of renal calculi where during the removal this plan was adopted. The stones were all small and single and in no case was the incision in the kidney more than three-quarters of an inch in length.

Professor WERTHEIM SOLOMONSON (Amsterdam) described

The Einthoven Galvanometer.

The essential feature of this instrument is the displacement of a fine wire—through which the current passes—in a strong magnetic field. The instrument is capable of measuring the most minute currents and by suitable arrangements the movements of this wire can be photographed, making a very perfect oscillograph. Professor Solomonson during the course of his

remarks showed some current curves obtained by this instrument which were very beautiful and instructive, those illustrating the "current of action" given off by the heart being particularly interesting.

The PRESIDENT then showed

Some Tracings of Medical Coil Currents.

This was an amplification of his paper read in the Section of Medicine at Oxford in 1904. He showed how the presence of an iron core increased the length of the waves even to the extent of their interfering with each other. He said that short waves were much more pleasant and bearable than long waves, and he showed how by the placing in the circuit of a very narrow spark gap an otherwise undesirable current became almost ideal for testing purposes.

Dr. HUGH WALSHAM (London) and Dr. J. F. HALLS DALLY (London) jointly communicated a paper on

The Orthodiagraph,

in which it was stated that in this instrument the centre of the x ray tube or diaphragm, the centre of a small screen, and a marking pencil were all in exact line and all moved together freely in any desired direction. As the centre of the screen was passed over the chest of the patient a series of dots was made on the marking screen by the pencil, and as only those rays which came in a straight line from the centre of the anode were made use of an accurate outline of the heart, &c., was obtained comparatively easily and was quite free from distortion. Judging by the diagrams shown it would seem that the heart shadow as ordinarily seen in screen examination of the chest was about double the size of the heart itself.

The first morning's proceedings concluded with a paper by Dr. W. F. SOMERVILLE (Glasgow) on

The Effects of High-Frequency Currents on the Urinary System.

His general observation was that the amount of urine was increased, but in some cases where polyuria was present it was diminished. A large number of chemical analyses were given which tended to show that a course of high-frequency treatment tended to improve the metabolism and general nutrition of the body.

THURSDAY, AUGUST 1ST.

The second day's proceedings were opened by Dr. J. MACKENZIE DAVIDSON (London) who started a discussion on

X Rays and Sensitive Plates.

Dr. Davidson had carried out a large number of experiments of a most exhaustive nature, working out the influence of tubes of various degrees of vacuum upon the several brands of plates on the market. The whole trend of his researches went to prove the superiority of the French plates, the next best coming a long way behind.

A large number of those present took part in the discussion, all of whom were, in the main, of the same opinion as Dr. Davidson.

Mr. ELLIS PEARSON (Bideford) then read a paper on

The Use of the X Rays from the Point of View of the General Practitioner,

in which he insisted on the necessity of being up-to-date, and after giving a *résumé* of the general value of the rays in diagnosis and treatment showed how it was the duty of every medical man to make proper use thereof in the interests of his patient.

Mr. E. W. H. SHENTON (London) then followed with an address on

The Examination of the Hip-joint.

Mr. Shenton insisted on the importance of using the tube below the patient and carefully screening the case before taking the radiograph. Several lantern slides were shown and stress was laid upon the arch formed by the top of the obturator foramen and the neck of the femur. He said that so long as this arch line was not disturbed there could not be any great injury present. In case of fracture or dislocation the disturbance was very great.

Dr. DAVIDSON insisted on the value of the stereoscopic method in hip examinations and considered it to be superior to any other.

Mr. SHENTON replied.

Mr. J. R. RIDDELL (Glasgow) read a paper on

The Measurement of the Brim of the Female Pelvis by Means of X Rays.

This method consisted, he said, in laying the patient prone on the couch with the tube below and on a line drawn at right angles to the centre of the plane of the brim of the pelvis. The plate was placed on the buttocks so as to rest as nearly as possible on the back of the sacrum and tuberosities of the ischia. The shadow of the brim thus obtained was carefully measured, and, allowing for the position of the tube, brim, and plate, the actual size of the brim was arrived at by a comparatively simple calculation. The method would appear to be sufficiently accurate for all practical purposes. From experiments on the cadaver the error was found to be so very small as to be almost negligible.

Dr. J. GOODWIN TOMKINSON (Glasgow) read a paper on

A Method of Treating Lupus Vulgaris,

in which he said that the treatment consisted essentially of mild scraping, exposure to x rays, and the use of Unna's creasote plaster in turn, with intervals of rest. He had found it of great value and showed lantern slides of cases where it had been employed with considerable success. The method was recommended where the Finsen method was unavailable or too expensive.

Mr. JAMES TAYLOR (Bristol) read the notes of a case of Paget's Disease Treated by X Rays.

The second day's proceedings were brought to a close by Dr. A. HOWARD PIRIE (London), who read a paper entitled

"*The Measurement of the Reverse Current in an X Ray Tube and a New Meter for Estimating the Dose of X Rays,*"

in which it was pointed out that the method was based on the electro-decomposition of water and the instrument was placed in series with the x ray tube. If it was desired to measure the inverse current the gas given off by the two electrodes was collected separately and the proportion of direct and inverse currents arrived at by calculation. For estimating the dose of x rays the gases were not separately collected. The instrument employed was described and illustrated in THE LANCET of July 13th, 1907.

FRIDAY, AUGUST 2ND.

The third day's proceedings were opened by Dr. J. H. SEQUEIRA (London) with a paper on

X Ray Dosage.

The paper was based upon the experience gained during the past two years in the skin clinique at the London Hospital. In that period 16,000 exposures had been made to the x rays by measured doses. Although large doses had been given there had been no dermatitis. The older method of frequent exposures and the risks of cumulative effects were contrasted with the present method of giving larger doses at stated intervals under the control of instruments of precision. Dr. Sequeira laid stress upon the importance of realising that there was a definite latent period between the administration and the reaction and cited Kienbock's classification of the degrees of reaction. In the first stage there was a period of latency of three weeks. The reaction was without inflammation but the hair fell out and lupus nodules became smaller. A larger dose caused the second degree of reaction which appeared after a latent period of 14 days. In the third degree the latent period was of ten days' duration, the reaction was more severe, and was accompanied by vesication, superficial erosion, and exudation. A telangiectatic scar resulted. In the fourth degree the reaction might appear in a week and was of the necrotic type with severe ulceration. In order that the various degrees of reaction might be obtained it was necessary thoroughly to know the apparatus which was being used and to measure the current in the primary circuit by the voltmeter and ampèremeter, to regulate the frequency of the interruptions, and to maintain the resistance of the tube. The alternative spark gap and the milliampèremeter in the secondary circuit were guides to the resistance of the tube. The penetration was estimated by a Benoist's apparatus and the output of rays was estimated by the pastilles of Sabouraud and Noire. The B tint, which was equivalent to five Holtzknecht's units, was taken as the guide. This dose was sufficient to epilate without producing an erythema. It was the dose used in the treatment of ringworm of the scalp and sycosis. In the case of rodent ulcer a large single dose was administered and then a fortnight was allowed to elapse before the same area was treated again. The dose varied. For an ulcerated surface a pastille dose would suffice; for an indurated edge the dose might have to be double this. These large doses might be

given at one or more sittings. Similar large doses were given in mycosis fungoides, sarcoma, and epithelioma, and in every case a period of from 14 to 21 days was allowed to elapse before the same area was again irradiated. In some cases of lupus vulgaris the same method was adopted with satisfactory results. In conclusion Dr. Sequeira raised the question of the risk of setting up a condition similar to the dermatitis of x ray workers by the too frequent exposure to small doses of x rays.

Dr. J. DELPRATT HARRIS (Exeter) read a paper on

Statistics relating to Some Cases of Lupus and Rodent Ulcer treated by the X Rays and Zinc Ions.

This paper went to show the superiority of these methods to those formerly in use and how in the great majority of cases they could be depended upon to give a satisfactory result.

Dr. E. REGINALD MORTON (London) read a paper on

The Therapeutic Use of Alternating Currents of Low Frequency.

He contended that in treating atony or degeneration of muscular tissue the ordinary constant current was not sufficiently stimulating, while in that obtained from a coil the fluctuations were too rapid for the degenerated muscle to derive any direct benefit therefrom. While it was admitted that cases sometimes did well with either, better results would be obtained by using a current that embodied the good points of both, and he had found that a sinusoidal current which reversed its direction of flow from two to four times per second was most satisfactory. The periodicity of the current should be adapted to the state of the muscle being treated, and, speaking generally, the more severe the atony or degeneration the more slowly should the reversals of the current take place. Excellent results had been attained in his hands, especially in atonic dyspepsia and other disorders due to atony of the muscular coat of the digestive tract.

Dr. W. IRONSIDE BRUCE (London) read a paper on

Systematic Radiography.

His idea was always to take every part under the same relative position of tube, part, and plate, such position being the one that had been found by experience to give the best view. He showed a very simple couch for attaining this end and he had also prepared an atlas of normal radiographs made in this way.

In the subsequent discussion Mr. SHENTON insisted on the importance of careful screening beforehand, while Dr. Davidson equally insisted on the superiority of the stereoscopic method over any other.

Professor SOLOMONSON'S paper on

The Electro-diagnosis of Oculo-motor Paralysis

was read by Mr. W. DEANE BUTCHER. In this he showed how, under certain conditions, it was possible to obtain a reaction without risk of damage to the eyeball. His method was to place the electrode on the tendon of the muscle in the same way as was done to obtain the longitudinal reaction in a peripheral muscle in a state of degeneration. The idea was useful in the differential diagnosis of central and peripheral lesions and also threw valuable light on the prognosis in some cases.

Mr. F. HOWARD HUMPHRIS (Honolulu) contributed a paper on

The Rationale of Static Currents.

His contention was that static electricity did not receive the amount of attention and use that it deserved. His theories as to the way it produced its effects—polarisation of cell contents, &c.—were ingenious but had not yet been generally accepted, nor was it generally admitted that static electricity could produce the tangible results obtainable by ordinary dynamic currents.

The session concluded by the exhibition of a series of very interesting lantern slides contributed by the PRESIDENT of the section, Dr. G. H. ORTON (London), Mr. SHENTON, and Mr. C. R. C. LYSTER (London).

THE ANNUAL EXHIBITION.

(*Concluded from p. 391.*)

IV.—SANITARY APPLIANCES.

The exhibits coming under this heading were not very strongly represented, such things as disinfectants, filters, special bath fittings, and sinks falling in this category. A good deal of attention was given to the simple sanitary devices of the Ajax Sanitary Company, Limited, of 22, Ely-place, Holborn-circus, London, E.C. The invention refers to a very simple and successful attempt to do away with unclean traps and fittings. The invention consists of a sliding valve or shutter fitted in a recess at the back of the lavatory basin, forming as it is said a "moveable weir," over the top of which the waste water may run away faster than it can flow into the basin. The result is that not only is the risk of overflow avoided but the shutter may be removed for cleaning purposes. The lavatory basin and bath wastes are often a source of offence which, however, is not possible with the Ajax slide. Messrs. Slack and Brownlow, of Abbey Hey, Gorton, near Manchester, exhibited various forms of the Brownlow germ filter, which consists of hollow cylinders of porous porcelain. Bacteriological experiments have shown that this material prevents the passage of organisms. The filter is adapted for both high and low pressure, while one form consists of a hospital filter with thermometer attached. Thus a supply of sterile water at any temperature may be obtained for surgical requirements. The Sanitas Company, Limited, of Locksley-street, Limehouse, London, E., exhibited a number of sanitary appliances, including the well-known sanitas disinfectants, sanitas formic lamps and fumigators, and sanitas sulphur fumigating candles and drain testers. Amongst the disinfectants were preparations having a carbolic coefficiency respectively of 20, 10, 8, 5, and 2. Close by were the sanitary compounds of Messrs. Jeyes, of 64, Cannon-street, London, E.C. The stall was occupied chiefly with preparations of cyllin which is guaranteed to be at least ten times less toxic than carbolic acid and to have Rideal-Walker coefficients ranging from 10 to 30 according to the organism employed. The exhibit included medical cyllin, soaps, dusting powder, lint, gauze, and cyllin inhalant. Amongst sanitary appliances may be counted the floor polishes of Ronuk, Limited, of Portslade, near Brighton, which are used satisfactorily in the wards of the principal hospitals. It is convenient also to include in this section the interesting exhibit of the Cellular Clothing Company, Limited, of 72 and 73, Fore-street, London, E.C. The Aertex cellular clothing is porous while it is a non-conductor of heat. It follows that while this cloth protects the body from cold it does not interfere with the escape of the exhalations from the skin. Lastly may be mentioned the exhibit of the Sanitary Wood Wool Company, of 14 and 26, Thavies Inn, Holborn-circus, London, E.C. This exhibit included antiseptic wood-wool tissue for the absorption of discharges, wood-wool sheets for accouchement, wood-wool vaccination pad, and a specially absorbent cotton wool.

V.—MINERAL BEVERAGES, &c.

This section contained several exhibits demonstrating the properties of the mineral waters of some of our home watering-places. The corporation of Leamington, for example, furnished a stall on which were photographic illustrations of this spa and its balneological appliances; there were also specimens of Leamington water. The installation at Leamington includes heat and light baths, treatment by high-frequency current, and swimming and Turkish baths. The advantages of the Harrogate waters and of a stay at the place itself were also amply illustrated at the exhibit of the Harrogate corporation. Specimens of the waters were shown at this stall by Messrs. Croyden and Co., of 55, Wigmore-street, London, W., who took the opportunity also of bringing to the attention of medical men their shadowgraph bougies which have been used with conspicuous success for the exploration of the ureters and kidney in renal disease. The advantages of the Buxton thermal mineral waters were explained at a stall under the management of Mr. John Hatton of Buxton. Here could be obtained an account of the climate of Buxton, of the facilities for exercise there, of the up-to-date arrangements provided for bath treatment, x ray treatment, and electropathic methods. An auxiliary at Buxton appears in the form of moor or mud baths, there being an extensive supply of peat in the immediate neighbourhood of the town. The Perrier Company of 45 and 47, Wigmore-street, London, W., presented a well-designed exhibit of bottles in three sizes of Perrier table water. This water is beautifully soft to the palate, is only slightly alkaline and mineralised, while it is free from objectionable excess of carbonic acid gas. In addition to the well-known purgative bitter water Apenta, the Apollinaris Company of 4, Stratford-place, Oxford-street, London, W., exhibited Johannis water and Apollinaris water. It may not be generally known that Apollinaris water contains natural bicarbonate of soda which gives to it the same antacid properties as are presented in the liquor sodæ effervescens which was at one time in the British

Pharmacopœia. The exhibit included Johannis lithia and potash waters. A very fine exhibit of mineral waters was that of the Chemists' Aerated Mineral Waters Association, Limited (Camwal), of Camwal Works, Bristol. One excellent non-alcoholic drink prepared by this firm is a very palatable pale dry ginger ale which contains a minimum of sugar. The exhibit included also a novelty in the shape of a "splitlet," a bottle smaller than the "split" size and containing a small quantity of soda-water representing the quantity usually consumed with spirits. Messrs. Ingram and Royle, Limited, of East Paul's Wharf, 26, Upper Thames-street, London, E.C., exhibited a large selection of natural mineral waters. There were also specimens of Carlsbad and Vichy salts. The Friedrichshall Company, of 10 and 12, Milton-street, London, E.C., exhibited the well-known natural aperient mineral water of Friedrichshall. It contains the sulphates of magnesium and sodium in nearly equal quantities, the usual dose being from one to two tumblerfuls. It also contains the chlorides of magnesium and sodium which are said to modify advantageously the action of the sulphates. Lastly should be mentioned the excellent samples of Devonshire cyder exhibited by Messrs. H. Whiteway and Co., of the Orchards, Whimple, Devon. Samples were submitted for tasting purposes and the verdict was obviously a favourable one.

VI.—PUBLICATIONS.

Amongst the publishers exhibiting books on modern medicine and surgery were W. B. Saunders Company, of 9, Henrietta-street, Covent Garden, London, W.C.; Mr. Sidney Appleton, of 25, Bedford-street, Covent Garden, London, W.C.; Mr. H. K. Lewis, of 136, Gower-street, London, W.C.; and Messrs. Rebman, Limited, of 129, Shaftesbury-avenue, London, W.C.

On previous occasions we have included in our notice of the annual exhibition a miscellaneous section, but this year there were no exhibits coming under this head.

ERRATUM.—In the report which appeared in our issue of August 10th of the Section of State Medicine at the British Medical Association held on Thursday, August 1st, Dr. J. H. Drysdale of London was erroneously reported as speaking in the discussion on the home contamination of milk. The speaker was really Dr. C. R. Drysdale of London.

Looking Back.

FROM

THE LANCET, *SATURDAY*, August 18th, 1829.

DR. AMUSSAT'S METHOD OF ARRESTING HÆMORRHAGE.*

To the Editor of THE LANCET.

SIR,—M. Amussat, doctor of medicine, and lecturer on anatomy in Paris, having lately been employed in very interesting experiments, on the "*torsion of blood vessels*," *as a means of stopping hæmorrhage*, has requested me, through Mr. John King Dingle, his pupil, who witnessed those experiments, to insert, in your extensively read Journal, a short account of his discovery. It appears that this gentleman was led to devise his new means of stopping hæmorrhage, by reflecting on the well-known canon in surgery, that "torn wounds do not bleed." His first essays were made on dogs and horses; having divided arteries in these animals, he bruised and lacerated the vessels in a variety of ways, but always without producing a durable suspension of the bleeding. After many attempts, he found that twisting the artery a sufficient number of turns was an effectual styptic, and, in his opinion, a more simple and expeditious, and less painful method than the ligature. Dr. Amussat's experiments were made in the presence of some of the most distinguished surgeons in Paris, and repeated before the Royal Academy of Surgery, and the general opinion entertained is, that his mode of operation will be one of the greatest utility, especially in the army and navy, as it enables the surgeon himself to secure the largest artery without the aid of an assistant.

The following is his mode of proceeding: Each orifice of the bleeding vessel, whether artery or vein, is to be seized with a pair of small forceps, so constructed as to be kept close with a spring; the vessel is then to be drawn out and separated from the different tissues which surround it, and a certain portion is to be insulated with another forceps, probe-pointed, and to be held in the left hand, for the purpose of limiting the effect of the tortion, which would otherwise affect too great a length of the vascular tube. The tortion is to be made with the right hand on the elastic forceps; ten half turns of the forceps will suffice to repress the flow of blood, and twenty will tear through the tissue of the vessel. It is necessary, after every three or four turns, to relax the hold a little, to allow the retraction of the artery or vein.

The rupture of the middle and inner tunics takes place, most frequently, after ten half turns, and these are forced back into the area of the artery, so as to form a valve, which is closely involved by the cellular coat; it is recommended, however, to twist the end of the artery off, as it presents a greater degree of security, and has been attended with more satisfactory results. The doctor's plan is supported by numerous proofs derived from instances of complete success. To render the tortion more easy, it is necessary to draw the artery well out from its connexions, and the twisting ought to be confined either with the thumb and index of the left hand, or with the blunt pointed forceps before mentioned.

M. Amussat, after having successively and comparatively tried all the different means hitherto adopted in the suppression of hæmorrhagy from arteries and veins,—having used every kind of ligature that has ever been recommended, —having plunged the extremities of arteries into the most powerful and concentrated acids,—and after pressing, crushing, bruising, turning up, and pushing back the bleeding extremities,—has found no process so certain, or so often successful, as that of tortion. The twist, if properly executed, is not only sufficient to withstand the *vis à tergo* of the column of blood, but will bear, without detriment, the friction of a sponge in cleaning the surrounding parts. After having assured himself of these facts on the lower animals, M. Amussat tried whether this process were applicable to the human body. He put in practice his tortive experiments on the tubes of every calibre, from the narrow channel of a ramus cuniculus to the main canal of the aorta. To ascertain the quantity of resistance which the torsion would offer to the column of blood, he injected, with a powerful syringe, into the twisted arteries of a dead body, a fluid of equal density with the blood, but in no instance did the bulwark of the twisted extremity give way, although, in several instances, the coats of the arteries were ruptured by the force of the pressure employed. M. Amussat has not communicated to me any examples of its application on the living subject.

To illustrate more cogently the principles which this justly-celebrated physiologist wishes to establish, I shall suppose a case of divided radial artery. Each of the bleeding extremities is to be laid hold of by the self-shutting forceps already described; the flow of blood being thus arrested, the operator seizes hold of the forceps, already fixed on the artery, and gently extends the vessel from its sheath, whilst, with the probe-pointed forceps in the left hand, he grasps the artery about three or four lines from its extremity, and presses the sides together, thus limiting the extent of the tortion, which is next to be affected. The insulated piece of artery is now to be twisted to ten or twenty half turns, and the conical end of the vessel remains perfectly secure. By the traction first applied, the elastic external coat is drawn over the two inner and less versatile tunics, the ends of which are rolled back, so as to plug up the mouth of the tube, and afford a safe basis for a coagulum. The consequent effusion of lymph guarantees the success of the process.

Of the practicability of M. Amussat's plan I have had no personal experience, and I therefore do not presume to offer an opinion. I am, Sir,

Your obedient servant,

Westminster Hospital, 6th August, 1829. D. O. EDWARDS.

P.S. M. Amussat has also invented an improved lithotritic apparatus, and an instrument for dilating the urethra.

---

* This letter was not received until after the account of Dr. Amussat's method of arresting hæmorrhage, given at page 580, had been sent to the press.—ED. L.

(Vide "Looking Back" in THE LANCET of August 10th, 1907, p. 407.)

THE LANCET.

LONDON: SATURDAY, AUGUST 17, 1907.

The Housing Congress.

THE International Congress upon Housing has been engaged, apparently in a very sensible and practical way, in endeavours to approach the solution of a problem of vast importance to all large or crowded communities, and of such a kind that the members of the medical profession have special knowledge of its nature and urgency. Whether as practitioners or as moralists we have numerous facilities for observing the degree in which the influence of home may be traced throughout the career of the individual or the history of the race, and we are daily witnesses of its effect alike upon health, upon intelligence, and upon character. In this country there has no doubt been a steadily progressive improvement as regards many objectionable or injurious home influences, but this improvement has to some extent been neutralised by the overcrowding consequent upon two main factors, the absolute increase of population within the limits of territory, and the increasing tendency of that population towards aggregation in great towns. We had occasion, a few weeks ago, to quote the description given by Sir JOHN SIMON in 1849 of the housing of the working classes in the City of London; and, although it is inconceivable that the horrors therein set forth should anywhere be repeated in the England of our own day, it is none the less certain that, in the face of modern tendencies, their re-appearance can only be prevented by constant vigilance on the part of municipal and sanitary authorities. Mr. BURNS, we observe, has lately expressed the opinion that it is essential, as a first step towards the improvement of housing, to increase the earnings of the lower industrial strata of the community and especially of casual or unskilled labour; but in this pronouncement he has, we think, fallen somewhat below his ordinary level of sagacity. A man, be he a labourer or anything else, will spend his earnings mainly in procuring the things which he wishes to have, and as long as the labourer prefers beer o cubic space or to cleanliness, so long will any increase in his resources be devoted to the real object of his desire, rather than to others which are regarded as more excellent by sanitarians or philanthropists. At a not very remote period, when high wages were being earned in the Midland coalfields, it was not uncommon for miners to dine in May upon salmon, followed by ducklings and green peas, although many of them were contentedly living in hovels, and scarcely possessed clothing which a tramp would have picked up in the road. A few years ago, moreover, when a philanthropic society undertook the work of repairing certain tenements in St. Giles's, and of rendering them fit for human habitation, the chief difficulties which they encountered arose from the tendency of the occupiers to tear out gas- and water-pipes from the walls, or to remove door and window fastenings for the purpose of converting them into money, and later, perhaps, into gin.

An exceedingly instructive report recently issued by the Local Government Board is that of Dr. L. W. DARRA MAIR on the sanitary circumstances of the Whickham urban district, with special reference to its housing accommodation generally, and to certain back-to-back houses at Marley Hill in particular. Dr. MAIR reminds us that, according to the standard of the Census Commissioners, "overcrowding" is defined as a condition which exists when tenements are occupied by more than two persons per room (including every bedroom, sitting-room, or other room); and in the Whickham urban district he found the requirements of this definition to be fulfilled in 62 out of 112 one-roomed tenements, in 398 out of 886 two-roomed tenements, in 179 out of 660 three-roomed tenements, and in 59 out of 585 four-roomed. Stated in another way, the facts were that 698 families, comprising 4889 persons, were so housed as to be living more than two in a room. The number of "overcrowded" families was 27 per cent. of the total number of families in the district and the number of "overcrowded" persons was 38 per cent. of the total population, proportions which are not equalled, and are scarcely approached, anywhere in England or Wales save in certain parts of the counties of Durham and Northumberland. This overcrowding in the Whickham district is most remarkable in a number of small back-to-back dwellings at Marley Hill—dwellings occupied by a well-to-do class of miners and containing furniture and belongings which may almost be described as luxurious and are always good and comfortable. In these dwellings there has for many years been a high rate of mortality, which seems to have been disguised under an ingenious manipulation of figures but which Dr. MAIR renders conspicuous. Taking the ten years 1896–1905 the mortality of Marley Hill as a whole has been 13·9, while that of the inhabitants of the back-to-back houses has been 16·0 and that of the remainder of the district 12·6. The infantile mortality in the back-to-back houses has averaged 221 per 1000, against 147 in the rest of the district, and all this notwithstanding that the inhabitants are distinctly of a superior class, that they are not poor, and that the general sanitary conditions are fairly good. The reason of the overcrowding is explained to be that the houses belong to the colliery proprietors and that by virtue of an old local custom they are occupied rent-free by the miners as part of their wages. Men who cannot get a "rent-free" house receive a money allowance in lieu thereof; but the rent they have to pay slightly exceeds the amount of this allowance, and a miner receiving it, as soon as a "free" house which he can claim by seniority falls in, hastens to occupy it, however inadequate it may be to the requirements of his family. It would be impossible to adduce stronger evidence that neither better pay nor the mere general "elevation" of the working classes will impel them to make any sacrifice for the sake of good housing, and that adequate instruction as to the bearings of the question upon their health and comfort is one of the most urgent requirements of the case.

It scarcely falls within our province to consider the various schemes, municipal or private, philanthropic or

speculative, which of late years have been put forward as likely to afford solutions of the "housing question," and we have no desire to minimise the difficulties by which that question is surrounded. They are so great, and of such a nature, that the whole subject appears to us to be one of national or imperial concern, which should no longer be left to private or even to local enterprise, and which urgently requires the intervention of the legislature. It is clearly necessary that every centre of population should be rendered able to provide shelter for its industrial elements, who, if left to find house accommodation for themselves, are certain to become the prey of a very undesirable set of speculators, and equally certain to provide centres of physical and moral evil from the effects of which their better housed neighbours cannot hope to remain exempt. It is very urgent that avoidable evils arising in the homes of the lowest classes of the community, and especially among those who live by unskilled labour, should be sternly repressed by law; if necessary, by the methods employed in some continental countries, such as compulsory labour colonies and separation of the sexes, so that the great educational power of the magistrate may be brought to bear upon the classes most in need of enlightenment. In addition to these influences we want that of the school, such as it might be made if managers and teachers would learn that their business is to educate, not merely to impart the rudiments of the three R's, and to educate chiefly in those directions in which the home influences surrounding the pupils are misleading or defective. Such directions, in the homes which most require amendment, are not difficult of discovery. The children who come from them have need to learn the first principles of conduct. Assuming Mr. BURNS to be correct in his view as to the necessity of higher wages, the children have to learn that the way to get higher wages is to deserve them. They have to learn that a dirty and overcrowded home means disease and death as well as the extent to which these evils can be kept at bay by an observance of the first rudiments of sanitation. By some agency or another, it cannot be doubted that decent houses will in the future be provided for all who are fit to be trusted with them; and the development of this fitness will be the proper work of the school, as soon as those responsible for conducting it can emancipate themselves from traditions which have long lost all vitality and are mere survivals of more primitive times. If the principles of conduct were taught to both sexes, and the arts of cooking and housework to the girls, it would in time become possible to leave the submerged, the slattern, the incapable, and the sot, to be dealt with according to their deserts by properly constituted authorities.

"Rheumatoid Arthritis."

AN interesting discussion took place at the recent meeting of the British Medical Association which was held at Exeter on Rheumatoid Arthritis and the Morbid Conditions which Simulate it, with Special Reference to Pathology and Treatment (see p. 440 of our present issue). The classification and diagnosis of diseases of the joints which bear a resemblance to rheumatism and gout are acknowledged to be matters of considerable difficulty. The practitioner is liable to become confused as to the various terms employed to designate morbid changes in the joints, which changes may be ill-defined or so similar as to be scarcely distinguishable one from another. The speakers who took part in the discussion on rheumatoid arthritis well illustrate the divergent views which are still held as to the condition popularly known as "rheumatic gout." Whilst some practitioners deprecate this term as inexact, inasmuch as they maintain that the disease has no connexion with rheumatism or gout, others still hold that some relationship exists between the maladies. The question is naturally of considerable importance, since the treatment must depend upon the causal factors that produce the changes found in the joints and upon the extent to which we are prepared to regard the condition as a distinct clinical entity.

The very lucid statements of Dr. ARTHUR P LUFF, who opened the discussion, probably express the views held by the majority of physicians, although the remarks uttered by subsequent speakers indicate the arguments which may be urged against those views. With regard to terminology Dr. LUFF used the words "rheumatoid arthritis" throughout, although he admitted that the term was open to the objection that it presupposed a causal relation between the condition and rheumatism. "Arthritis deformans" would perhaps be more correct, and "osteo-arthritis" might be employed, but Dr. LUFF preferred to restrict this term to the "so-called forms of monarticular rheumatoid arthritis which were always traumatic in origin," a limitation which is surely not generally observed. Dr. LUFF rightly pointed out that rheumatoid arthritis is a constitutional disease, not a local one, the affection of the joints being only a part of the morbid process. This is of importance in respect to treatment, especially when mechanical methods are employed. It is now generally accepted that rheumatoid arthritis is a disease due to micro-organisms gaining access to the blood, probably through the alimentary tract, although invasion may also take place from the nose, pharynx, or air tubes. It is also acknowledged that various predisposing causes exist, such as excessive work and strain, debilitating conditions (especially influenza), a neurotic disposition, and traumatism.

From a practical point of view the diagnosis and treatment of the disease are of supreme interest. Early diagnosis is of first importance, since it is evident that better results will be likely to follow if the nature of the malady is recognised and suitable treatment is employed before deformity of the joints manifests itself. The early stages of the disease are characterised by rapidity of pulse, local sweatings and progressive involvement of joints. The tachycardia is persistent, scarcely any variation being observed by day or night. Many observers have also drawn attention to the spotty pigmentation so frequently seen in the skin of patients suffering from this disease. Cold extremities are also a characteristic feature. Whilst these general symptoms may suggest the nature of the illness attention is naturally especially directed to the condition of the joints. In the acute form, as Dr. LUFF pointed out, the synovial membranes are primarily mainly affected, while the ligaments are softened and infiltrated, presenting the well-known spindle-shaped enlargement of the joints. The cartilages are damaged secondarily, and it is not

until the disease has assumed the chronic form that the signs indicative of destruction of the cartilage become evident accompanied with cartilaginous and osteophytic outgrowths. At this stage, too, the grating in the joints and the resulting deformities are characteristic, being evident both to the physician and to the patient. Dr. LUFF further drew attention to the existence of Heberden's nodes, which represent the mildest degree of the disease and are found in the chronic form of rheumatoid arthritis. Some of the speakers laid stress on the aid given to diagnosis by the use of the x rays. The necessary apparatus, however, is not available to all practitioners, and hence a conclusion must be arrived at by a consideration of the general and local signs to which we have alluded. The treatment of rheumatoid arthritis differs in many respects from that adopted in rheumatism or gout, hence again the importance of diagnosis presents itself. The diet must be as liberal and good as the patient can digest and animal food may be freely partaken of. Stout or ale may also be given with advantage. The drugs recommended by Dr. LUFF are guaiacol and iodide of potassium. Guaiacol is best given in cachets in the form of the carbonate. At first from five to ten grains may be given three times a day and the dose should be increased by one or two grains each week until from 15 to 20 grains are taken in each dose. Dr. LUFF insisted on the importance of continuing this treatment for at least 12 months. The beneficial effects of guaiacol may be added to by administering at the same time iodide of potassium, combined with a tonic to counteract its depressing effect. Iodide of iron has also yielded good results in the hands of some observers. The mechanical treatment of rheumatoid arthritis was also duly discussed, some of the speakers having had the advantage of prolonged experience in hydro-therapeutics. Douche-massage when obtainable has yielded good results and so have peat and brine baths. Radiant heat baths have also proved of advantage. When such measures cannot be obtained, however, much relief may be derived from the use of general massage regularly given. Local massage of the joints is not so satisfactory and physical exercises may also be of advantage when properly regulated.

We have only alluded to certain points which were raised in a discussion the importance of which cannot be well exaggerated, and we trust that the various opinions which were expressed may be of value to those who are engaged in investigating the subject either from a purely clinical point of view or in the laboratory. Dr. F. J. POYNTON, whose researches as to the bacteriology of the disease deserve serious attention, referred to the micrococcus which, working with Dr. A. PAINE, he had isolated from a joint and by it had produced rheumatoid arthritis in rabbits. The record of this work was published in our columns, but we are not certain that its suggestiveness appealed with sufficient force to our readers. Dr. T. J. P. STRANGEWAYS also stated that he was engaged at Cambridge in a research into the pathology and etiology of the disease, which he did not regard as a clinical entity but as a type. His results will be awaited with interest. The elucidation of the etiology of rheumatoid arthritis has not yet been accomplished, but we trust that the efforts that are now being made will be effectual in placing the nature of the disease beyond doubt and so enable the treatment to be carried out on rational lines.

The Health of the Teacher.

WHEN we called attention last week to the recent plethora of congresses dealing with medical and allied subjects which have met in our midst we implied no lack of sympathy with the objects of their labours nor undue scepticism as to the useful results which might accrue. There is, indeed, something to be said for the simultaneous holding of congresses, as it will frequently happen that opinions expressed at one meeting will be confirmed by experiences recorded at another, while it is possible for men of wide interests to attend with the minimum of inconvenience the sessions of several organisations. Our only regret is that while so much material of interest to our readers is available mechanical reasons compel us to be selective in what we publish, and we particularly regret our limitations in the matter of the proceedings at the Congress on School Hygiene, for many of the problems which came before this Congress have been dealt with from time to time in our columns, and we have continually urged upon the public and on the various authorities concerned the vital importance of the hygienic management of our schools. That great good will result from the holding of this meeting in London we cannot doubt, nor can there, unfortunately, be any question that we in England have much leeway to make up in the field of school management and organisation. It is melancholy to be told that this country is not only behind the principal nations in Europe, including Russia, but has also been passed by Chili, Argentina, and Servia, in providing for such an elementary necessity as medical examination of school children. There are many physical defects which render a child incapable of profiting by the instruction provided for his normal companions and which may even cause school discipline to be a source of actual bodily injury; knowing this we cannot doubt that the neglect shown by this country to provide for the medical inspection of school children has caused, and is causing, serious drawbacks to many of the rising generation of citizens who, as they themselves become more instructed in personal hygiene, will look back on their school experiences as a period of barbarous mismanagement on the physical side, counterbalanced perhaps (and perhaps not) by intellectual gain. If, as we hope, the Congress has succeeded in bringing home to thoughtful minds the reality of the existing evils, we shall, indeed, have cause to congratulate ourselves on results of national importance. A perusal of the *résumé* which we give this week of some of the more important events of the Congress will show from what varying directions the subject of school hygiene has been approached and what a mass of first-hand knowledge has been placed through its means at the disposal of the public.

In applying the laws of health to school affairs a legion of problems arise, sufficient to supply material for the consideration of many conferences. The children's eyes, ears, and teeth, their hours of relaxation and of sleep, their food, and their varying degrees of mental power all demand attention, and it is manifest that all are receiving it. But there is

one aspect of the matter which is liable to be lost sight of by inquirers in this field. The teachers as well as the taught deserve consideration. They are equally exposed to risk of ill-health if the condition of the school be insanitary. Light and air, recreation and rest, are as needful for them as for their charges. Their very efficiency as teaching machines depends on the preservation of their faculties in the best working order. We are glad to find that at the Congress a special section was devoted to a study of the teachers' needs and that it was opened with a thoughtful address from Dr. T. J. MACNAMARA, M.P., who when he descends from the partisan platform to a consideration of matters in which he is an expert, is always a weighty and an interesting speaker. Two main points were emphasised in his remarks. The first was the importance to the teacher of conditions favourable for making himself heard by his audience. The profession of teaching involves an almost continual use of the voice and the resulting strain thrown on the larynx is very great. Many members of our own profession have opportunities for realising the degree of effort involved in delivering even an hour's lecture when the speaker has to contend against the noise of street traffic or any similar disturbance. But the duties of a school teacher are considerably more arduous, inasmuch as his labours are continued for many hours each day and involve not merely the fairly congenial work of delivering a prepared lecture, but the more wearisome effort of expounding elementary and therefore uninspiring matters to immature minds, with much wearisome repetition and amplification. In addition there is the necessity of maintaining discipline among a class often much too large for convenient handling, since financial pressure tends to keep down the number of teachers employed to the lowest limits. If, then, owing to the position of the school or to some other defective condition, additional difficulties are placed in the teacher's way the task becomes more than normal health and strength can overcome. Fortunately, most schools are placed at a distance from busy thoroughfares, if only in consequence of the annoyance caused to neighbouring residents by the young barbarians at play and by the vociferous enthusiasm of their exits. But now and again schools are unsuitably placed as regards traffic, and the teacher has to do his work amid the rattle of carts and the rumble of heavy vehicles, struggling pitifully to make his voice audible through the tumult which surges through every open window and door. This unequal struggle of the voice against the outside hubbub must be maintained throughout school hours. It cannot be wondered at that many a breakdown of health is caused by such conditions. Even in favourable circumstances the trial of the vocal powers of the teacher may be considerable and it would be well to arrange for instruction to be given to them in right methods of voice-production which may prove a striking boon to an uninstructed speaker. Nor must the general mental strain of teaching be forgotten and the need for sufficient time for rest after the day's work. Medical men have only too often to insist that delicate children shall not be made to spend their out-of-school hours upon home lessons; the same rule should apply to the teacher, who needs a fair interval of rest to prepare for the labours of the morrow.

A second important point dwelt upon by Dr. MACNAMARA was the incidence of pulmonary tuberculosis on school teachers. Experience of any hospital for chest diseases certainly bears out the extent of the evil in question which is unfortunately easier to indicate than to remedy. The disease is apparently one of indoor life and the teacher's time must be mainly spent within doors. The actual opportunities of infection within the school building are not, we should think, serious, since children with tuberculosis seldom expectorate and such behaviour in school would at once be checked. Still, the ventilation of school buildings is not a very easy matter to arrange; it is difficult to avoid some closeness of atmosphere during lessons, especially in winter. Any lurking tuberculous infection is thus liable to be stimulated. A remedy must be sought first in diffusion of the knowledge of the danger incurred by violation of the laws of health and of the value of fresh air in combating the malady. Here to be forewarned is to be forearmed, and those who realise the danger of a vitiated atmosphere will be less likely to be seduced by the attractions of shut windows or terrified by that domestic bogey, a draught. In the summer classes might be held out of doors with benefit to both teacher and taught when other circumstances allow, but in urban schools this cannot often happen. Time out of school may be spent in the open air, and open windows at night must be the rule. The cultivation of some outdoor pursuit, such as golf or cycling, will be a great aid to a healthy life on the part of the teacher. We are brought back again to the principle upon which we have so often insisted. Since lack of knowledge is still the first cause of those imprudences by which health is endangered, due instruction of school teachers in the elements of hygiene must be insisted upon, not only that they may teach the laws of health to the children but also that they may practise them themselves; and when these laws are matters of universal knowledge more will have been accomplished for the happiness of the nation at large than by the most attractive scheme of social plunder that has ever beguiled the enthusiastic reformer.

Annotations.

"Ne quid nimis."

THE INTERNATIONAL CONGRESS OF HYGIENE AND DEMOGRAPHY.

THE Fourteenth International Congress of Hygiene and Demography will be held in Berlin from Sept. 23rd to 29th. On Sunday, Sept. 22nd at 8 P.M. there will be a reception of members at the Neues Königliches Operntheater (Kroll). On Sept. 23rd the inaugural meeting will be held in the same place at 11 A.M., after which the exhibition will be opened in the Reichstag buildings, where also the meetings of the various sections will take place. The afternoon of that day will be spent in visits to local institutions. The sections will meet at 9 A.M. on Sept. 24th, 25th, 27th, and 28th. The afternoons will be devoted either to meetings of sections or to visits to local institutions on Sept. 24th, 25th, 26th, and 28th. The general meeting will be held on Sept. 26th at 9 A.M., and the closing meeting on Sept. 29th at 10 A.M. In the evening there will be a reception by the municipality at the Rathaus

on Sept. 24th, a dinner on the 25th, performances at the Royal theatres on the 26th, and a garden party on the 28th. After the conclusion of the Congress on Sept. 29th there will be a visit to Hamburg, where a social meeting will be held in the evening, and Sept. 30th will be spent partly in sightseeing and partly in a reception by the municipality at the Rathaus. The Congress is divided into the following eight sections: (1) hygienic microbiology and parasitology; (2) dietetic hygiene and hygienic physiology; (3) hygiene of childhood and schools; (4) occupational hygiene and the protection of the health of workpeople; (5) the prevention of infectious diseases and the care of the sick; (6) in two subdivisions (*a*) hygiene of dwellings, towns, and water, and (*b*) hygiene of methods of intercommunication and life-saving; (7) military, colonial, and naval hygiene; and (8) demography. The official languages of the congress are English, French, and German. Any person of either sex interested in hygiene or demography may become a member. The membership subscription is £1 (20 marks); relatives of members and students at colleges or universities may also be received as associate or passive members on payment of 10*s*. (10 marks); they may attend the meetings and the visits to places of interest but may not take part in the discussions. These subscriptions must be sent as soon as possible to the general secretary, Dr. Nietner, Berlin 9, W., Eichhornstrasse 9. The Congress has national committees in each of the participating countries. The chairman of the English committee is Sir Shirley F. Murphy, and the honorary secretaries are Professor George H. F. Nuttall, 3, Cranmer-road, Cambridge, and Dr. Paul F. Moline, 42, Walton-street, Chelsea, London, S.W. As the number of visitors promises to be very large the organising committee of the Congress recommends that hotel accommodation should be secured beforehand, and for this purpose the committee has made arrangements by which the Hamburg-Amerika Steamship Company will receive orders sent by members to its tourist office, Berlin, W., Unter den Linden 8. This company will on application send a list of 12 hotels where rooms and breakfast may be obtained at daily rates varying from 4 to 14 marks. A deposit of 10*s*. must be paid and the order must be given by Sept. 16th at latest. We have already mentioned in our issue of July 6th that a ladies' committee has been formed for the purpose of receiving the ladies, both German and foreign, accompanying members.

MOTOR TRAFFIC AND THE POLLUTION OF THE AIR.

As at present constructed the petrol motor is far from being a perfect engine. It may be satisfactory enough from the point of view of locomotion, but it is transparently defective from the point of view of hygiene. Not only does the motor engine at times give off offensive fumes which are easily visible, but it also discharges unseen gases which, though apparently inoffensive, are decidedly poisonous. The perfect combustion of the petrol is hardly ever attained, and amongst the products of incomplete combustion are two deadly gases—carbon monoxide and acetylene. It is not in the interest of the public that these gases should be discharged freely into our streets, and the chauffeur who, through bad engineering, allows his motor to evolve a maximum volume of these gases for each explosion in the engine is just as much a sinner against hygienic demands as is the manufacturer who makes the air vile with filthy black smoke. If no attention is paid to petrol consumption, the engine being set to give its maximum power, the exhaust will contain a considerable amount of poisonous carbon monoxide. If, however, attention be given to the consumption of petrol, so that just the quantity required for so much energy is expended, then the carbon monoxide is reduced to a minimum amount. It is obvious that the first condition most frequently represents the actual state of things, and it follows, now that the streets of London, at all events, are crowded with motor vehicles, including quite a large number of motor omnibuses, that the outpouring of poisonous carbon monoxide must be considerable. It is to be hoped that this pollution will spare the pedestrians from those symptoms of carbon monoxide poisoning which are so well recognised in the poor collier who has been fortunate enough to escape the direct effects of the colliery explosion but who has been compelled to breathe the treacherous after-damp. Even small quantities of carbon monoxide in the air produce a serious disturbance of the health standard, the leading symptoms being headache, loss of power in the limbs, and a state of semi-consciousness as though a narcotic had been taken. In stagnant weather it would not be surprising to find that such symptoms had their origin in the outpourings of motor traffic and we may next have to consider the question of ventilating the streets when natural agencies in the shape of wind fail us. The old pollution due to animal products is rapidly passing away and a fresh sanitary problem is being presented in the new pollution which arises from the imperfect products of combustion of the petrol of motor vehicles. So long as horse traction is the vogue it is difficult to see how pollution due to physiological combustion can be entirely avoided, but with the new system of locomotion which depends upon a perfectly definite process of chemical combustion prevention should surely be easily accomplished.

ABSINTHE.

SEVERAL French medical authorities maintain that habitual drinkers of absinthe exhibit far greater deterioration of both the mental and bodily functions than can be accounted for by the amount of alcohol consumed, and have suggested that the action of Belgium in prohibiting its sale should be followed. The taste for strongly sweetened and aromatic alcoholic drinks is by no means general in this country, although expensive liqueurs of various kinds are in some request in fashionable clubs and at the other end of the social scale "gin and cloves" is said to have had a vogue some years ago among laundry workers. When extra flavouring is desired the ordinary spirit-drinker adds a modicum of some kind of bitters; rum may also be taken with shrub; and there are stories to the effect that Caledonian topers have been known to impart "warmth" to whisky with cayenne pepper. In France absinthe is the favourite liquor of the dram-drinker. Its fatal fascination for the inhabitants of that country, so bountifully supplied with the natural wine of its own vineyards, is hard to explain. Those whose tastes lie in the direction of something stronger would, if they were well advised, drink brandy distilled from wine, for this does not produce the deplorable effects known collectively as *absinthisme*, against which the medical profession of France have for years been warning their countrymen. Absinthe is said to have been introduced into France about 60 years ago by soldiers to whom it had been recommended as a febrifuge during the long war which resulted in the conquest of Algeria. It has, as many of our readers doubtless know, a peculiar yellowish-green colour, a powerful odour, and a very marked aromatic taste in which oil of aniseed seems to prevail. Many formulæ for making it have been given. They generally resolve themselves into one of two processes—namely, either (1) the distillation of alcohol in which the pounded leaves, roots, and flowering tops of various aromatic plants have been macerated, including wormwood (Artemisia absinthium), angelica root (Archangelica officinalis), sweet flag root (Acorus calamus), and star anise (Illicium anisatum),

with the subsequent addition of oil of aniseed and syrup; or (2) the simpler method of dissolving the essential oils of wormwood, anise, and coriander in rectified spirit, adding sugar and water, and colouring with chlorophyll. Absinthe is seldom drunk in a hurry by a thirsty and preoccupied individual standing at the counter of a public-house. It has to be diluted by the consumer, and this may be done with various adjuncts which give some opportunity for the display of dexterity, just as in mixing a salad during dinner or peeling an orange at dessert. In connexion with this subject we may mention that a substance indistinguishable from the ordinary absinthe of commerce, in respect of colour, odour, taste, and so on, has been recently put on the market under a totally different name.

VACCINE-THERAPY.

WE publish this week the first part of a lecture delivered before the Harvey Society of New York by Sir A. E. Wright, which we trust will prove of service to many of our readers. It summarises the practical results achieved by his investigations in clinical pathology along a line of research which he has devised and perfected, and which promises to lay the foundations of a new and valuable branch of therapeutics. The portion of the contribution contained in the present issue summarises the various methods other than vaccine-therapy which have been adopted in the treatment of bacterial disease and proceeds to the discussion of the principles and *rationale* of the latter method, the machinery of immunisation, the questions of the composition of vaccines, and the estimation of their immunising effects by the method of determining the opsonic index. Next week we shall publish the more detailed description of the process of which this first part is an introduction; the second part will consist of Sir A. E. Wright's study of the "Curves of Immunisation" obtained by vaccination and other matters connected with the process, the therapeutic principles on which it is based, and the question of auto-inoculation with its artificial production for therapeutic purposes, and will conclude with a summary of the results that have been achieved by vaccine-therapy at the author's hands.

THE ACCOMMODATION OF THE NAVVIES EMPLOYED ON THE BROOKLANDS MOTOR TRACK.

Dr. Reginald A. Farrar has issued a report to the Local Government Board dealing with the accommodation of the navvies employed on the motor racing track recently constructed at Brooklands, and he makes it the occasion of some remarks on the subject of the accommodation of navvies engaged on large constructional works in general. He estimates the navvies of Great Britain to form a nomadic community numbering with their women and children 100,000, and points out that they are in some sense outside the range of action of sanitary laws. It is an interesting sign of the times that a class that passed successively from the construction of dykes and canals to that of railways should now find its occupation depending on the motor industry. The social condition of the navvy of to-day is, we hope, better than that of those employed on the construction of the first great railways of the last century, of which those who have read Smiles's "Life of George Stephenson" will remember a very graphic picture. Dr. Farrar's report, however, shows that their conditions of life are far from being satisfactory and that in the case in point a body of 1600 men were imported into a neighbourhood to carry out work that would last over some months without any provision being made for their lodging and without the provision of even a trustworthy water-supply. Dr. Farrar made a personal inquiry into the state of affairs and found that some 600 men had lodgings in the neighbourhood, but that many of these had to walk or cycle from four to seven miles to and from their work daily, and that these were only accommodated by an unhealthy crowding of the lodging-houses and cottages in the neighbourhood. About 500 navvies came in to work by train, many from London; the fares paid by the latter reduced their weekly wage of 24*s.* by 4*s.* 6*d.* About 300 more were "sleeping rough," i.e., on Weybridge Common or in such straw- and stack-yards and even hen-houses (Dr. Farrar, by the way, says hen-coops) as they could enter undetected. When the weather was inclement they fortified themselves (in their own opinion) against the night in the open air by half stupefying themselves with beer. The men themselves had constructed two rough shelters on the site of the works, but these, owing to their insanitary state, were destroyed by the contractors, who, moreover, made no attempt to replace them until after Dr. Farrar's visitation. It is only fair to state that when the facts of the injustice to the men and the nuisance to the neighbourhood were pointed out the contractors readily undertook the erection of a wooden shed with bunks accommodating 50 men and laid on a good supply of drinking water from the main. The contract was unlike many others for important works, as a large number of men were employed working in night and day shifts, and the work had to be completed in an exceptionally short space of time. There seems no doubt, however, that the contractors were morally responsible, before introducing over 1600 men of a rough class into the neighbourhood, for ascertaining whether adequate lodging accommodation existed and supplying any default. Dr. Farrar in his report draws attention to some of the difficulties of the subject, and suggests the advisability of an inquiry into the conditions of navvy life in general with a possible view to legislation in the matter. The dissemination of infectious disease by this class should alone serve to direct attention to it in the interests of the community, and it is only fair to an indispensable and hard-working body of men that the necessities and decencies of life should be assured to them.

THE MECHANISM OF ABDOMINAL PAIN.

Professor Lennander of Upsala read an important paper on abdominal pain, especially in connexion with ileus, at the recent annual meeting of the American Medical Association, which is published in the *Edinburgh Medical Journal* for August. His valuable researches on the subject of the mechanism of abdominal pain are now well known. He has found that abdominal pain is transmitted solely by spinal nerves—the phrenic, lower six intercostal, lumbar, and sacral. No abdominal organ endowed with the sense of pain is innervated only by the vagus or sympathetic nerves. Even a strong faradic current applied to the liver does not produce pain. Professor Lennander has cut through the gall-bladder so far as the cystic duct without causing pain, but when he tilted the liver or dragged upon the common bile duct, thus stretching the spinal nerves of the abdominal wall, pain was felt. The stomach, intestines, liver, and gall-bladder are not only without the sense of pain but also without the other three varieties of sensibility—the senses of pressure, cold, and heat. Professor Lennander has also found that the parietal peritoneum of the anterior abdominal wall possesses only the sense of pain and is devoid of the sense of pressure, cold, and heat. His observations are in favour of the specificity of the nerves of pain and of the view that the whole of the parietal peritoneum is provided only with nerves of pain—a condition previously known in the cornea. He believes that all abdominal sensations are transmitted only by the parietal peritoneum and its subserous layer, both of which are richly supplied with cerebro-spinal nerves. The irritability of the nerves of pain of the parietal peritoneum is much increased by slight peritonitis. Hence the movements of the stomach and intestines against the parietal peritoneum and the stretching of their mesenteries are felt as

severe pain. In perforation of the stomach or intestine the first pain is caused by contact of the contents with the parietal peritoneum. In gastric ulcer the paroxysmal pains are elicited by movements of the stomach dragging upon the parietal peritoneum which is hyperæsthetic on account of the lymphangitis due to the ulcer. Contraction or distension of a segment of bowel which is attended with traction upon its attachments to the abdominal wall is painful. The pain of intestinal obstruction appears to be due to stretching of the mesentery proximal to the obstruction. Wilms considers that a coil of bowel when contracting upon its contents at the proximal side of an obstruction tends to become straight in the same way as does the gut in sausage making. The mesentery prevents this and becomes stretched. Displacement of the peritoneum of the abdominal wall seems also to be a cause of pain. During laparotomies Professor Lennander passed into the abdomen his finger covered with a rubber glove and pressed on the anterior abdominal wall. The patient felt nothing, but as soon as the serous membrane was displaced against the muscles a feeling of pain was experienced which varied according to the degree of sensitiveness of the individual and the amount of displacement. The patients described their sensations as "like colic," "as if the bowel is being expanded by wind," "like bad griping pains." Professor Lennander therefore thinks that a displacement of the peritoneum takes place and produces pain as soon as a loop of intestine contracts on its contents, hardens, rises, and presses against the parietal peritoneum. These pains appear to occur not only in ileus but in cases of temporary irregularities of peristalsis in people not suffering from abdominal disease. The pains in hepatic disease may be explained as follows. The liver, gall-bladder, and the extrahepatic bile passages are without nerves of pain. But when the gall-bladder contracts to expel its contents the cystic and common bile-ducts and sensitive retro-peritoneal tissue are stretched.

THE BALKAN STATES EXHIBITION AT EARL'S COURT.

THE Balkan States Exhibition at Earl's Court is much more interesting and attractive than it may at first sight appear. The fact is that it is easier to organise an exhibition of one or two small States. What they have to show can be displayed within a reasonable compass, and these Danubian principalities have the further advantage of picturesqueness together with a recent and romantic history; they have only been independent nations for so short a time and had to fight so hard for their independence. Can it be possible that they have so soon taken rank among the civilised peoples of Europe? This question a visit to the exhibition will answer. Thus, in the Bulgarian Section there are admirable diagrams setting forth the development of the country. Gilded cubes give by their size an idea of the annual general trade, then of the trade with each nation, so that at a glance the progress of the country can be realised and it is seen which are the nations that have most contributed. The new laws of these new countries are in many respects in advance of the old laws of the old countries. Thus, and only considering that which affects public health, there is Article 7 of the Bulgarian Law on the work of women and children which says: "Night work in all industrial establishments is forbidden for boys under 15 years of age and for all women and girls irrespective of their age." Then there is a clause forbidding women to work for four weeks after child-birth. Other clauses insist that no work can continue for more than five hours without a rest, and the unwholesome hurry over meals is prevented by the law which stipulates that the interval from work shall last at least one hour. In the Servian Section the London visitor will not fail to be somewhat disconcerted when he sees photographs of the outdoor recovery schools of Belgrade. Here in London, only within the last few weeks, an experiment in this direction has been made at Woolwich. 100 children are having their lessons, their meals, and their recreation in the open air or under verandahs in the park belonging to the Woolwich Coöperative Society lent to the London County Council for that purpose. Place has thus been found for 100 children out of the seething populace of this huge metropolis; and here is the little capital of the little principality of Servia with its outdoor recovery schools in full working order, not as an experiment but as a well-established institution. There are also various exhibits of the Society for the Protection of the Health of the Servian Nation and of schools of cooking and domestic economy. The industries and natural products of Servia and those of Bulgaria are well and graphically exhibited, and on all sides evidence will be found of young peoples eager to advance. There is undoubtedly a great future for the Balkan peninsula with its mineral wealth, its agricultural produce, its beautiful scenery, and its vast ranges of mountains where the most invigorating and pure air gives life and force to a brave and strong race of people. In these countries also the cost of living is much less than in Western Europe and there are many mineral springs and beautiful places where health stations have been established, which only require to be better known to become very popular. Concerning all these matters fuller information can be obtained from the commissioner of the Servian Government.

SURRA IN THE FEDERATED MALAY STATES.

Dr. Henry Fraser, director of the Institute for Medical Research, Federated Malay States, and Mr. S. L. Symonds, the Government veterinary surgeon, have published in pamphlet form an "Interim Report on Surra" in that country. They say that trypanosomiasis in cattle and horses is on the increase and causes a great mortality among these animals in various tropical and subtropical countries. In horses the disease runs a rapidly fatal course and may quickly become epidemic; the clinical signs are those characteristic of surra; as a rule the microscopic demonstration of trypanosomes in the peripheral blood is easy. Cattle harbouring the parasites may for a long time appear to be in perfect health; apart from an occasional rise in temperature there are no clinical signs of the disease, and during this period microscopical examination will almost certainly fail to reveal trypanosomes. In the later stages the cattle become emaciated, the hair is scanty and dry, the poll is often denuded, and the animals are unable to perform much work. The most trustworthy method of detecting trypanosomiasis in cattle is by inoculation of their blood into rabbits and guinea-pigs, in the blood of which after a short period of incubation the parasites may readily be found. Biting flies of the genus tabanus are conveyors of the disease.

HOSPITALS AND SPECTACLES.

SOME time ago a number of philanthropic ladies initiated an Association for the Supply of Spectacles in London Elementary Schools. The spectacles which they proposed to supply were found to be of a very inferior quality, so that the authorities of the Royal London Ophthalmic Hospital (Moorfields) and other eye hospitals were unable to accede to the request of the association to fill in the cards issued by them. The price of spectacles supplied at Moorfields to patients of the hospital was at the time under consideration with a view to revision. Investigation showed that some reduction was possible whilst still leaving a reasonable profit for the manufacturers. The revised prices were therefore adopted, the price for simple spherical lenses being 1*s.* 9*d.*, and that for spherocylinders of average strength 4*s.* 6*d.* We believe that

the association has withdrawn its cards and now confines itself to the completely praiseworthy function of aiding necessitous persons to purchase spectacles by means of grants. We wish to draw attention to a letter which appeared in the *Times* of August 12th, signed by Lady St. Helier, chairman of the executive committee of the association, and two other members. It is pointed out that some hospitals have, and others have not, adopted the reduced rate now in force at the Royal London Ophthalmic Hospital and approved by the Metropolitan Hospital Sunday Fund. The Royal Southwark Eye Hospital has arranged that the reduced prices should be charged to children only, adults still paying the higher rate. In other cases the higher rate is charged to all. We concur with Lady St. Helier and her colleagues in hoping that the public notification of this anomaly may lead other London hospitals to fall into line with the Royal London Ophthalmic Hospital.

EPIDEMIC CEREBRO-SPINAL FEVER.

SPORADIC cases of epidemic cerebro-spinal fever continue to be reported from widely separated districts, but the notifications are obviously diminishing. In Scotland during the week ended August 10th there were four deaths from this cause registered in Glasgow, two in Edinburgh, two in Leith, one in Greenock, and one in Perth. In Glasgow the weekly report issued on August 9th showed that there were at that time 44 cases under treatment. In Belfast during the week ended August 10th there were three deaths registered as being due to this cause.

SWISS SANATORIUMS FOR CONSUMPTIVES.

IN THE LANCET of July 2nd, 1904, p. 47, we gave some particulars of the cost of various Swiss sanatoriums, quoting some figures prepared by Dr. F. Schmid, president of the Swiss Committee for Combating Tuberculosis. This gentleman has just published his report for 1906 which contains some interesting details, and our Swiss correspondent writes: "Dr. Schmid refers to the nine sanatoriums which receive indigent patients (Volks sanatoria). They contain 671 beds, 114 of which are reserved for children. They are situated partly in the lowlands at an altitude of from 400 to 500 metres, partly in subalpine (from 800 to 900 metres) or Alpine districts (from 1000 to 1660 metres). The amount of air space which each patient has in the bedrooms varies from 20 to 50 cubic metres (from 16 to 20 in the sanatoriums for children). There is ample provision for conducting the open air treatment in the case of every single patient. The bedrooms and general sitting-rooms are well ventilated throughout. All the establishments are heated by radiators (Zentralheizung) and are lighted by electric light. The Zürich sanatorium at Wald and the sanatorium at Malvilliers (in the canton of Neuchâtel) alone are lighted by acetylene gas. The sputum is mostly disinfected by steam. Dr. Schmid made a special investigation to find out the average cost of erection of a sanatorium of about 100 beds in Switzerland. He comes to the conclusion that such a sanatorium, including the building plot and gardens, should not cost more than £220 per bed in the lowlands and £240 in the Alps, where the extra expense for constructing roads is considerable. These sums compare very favourably with those spent on similar sanatoriums in other countries. £300 are spent in Germany (Alland), £400 in America (Reception Hospitals, New York), the same amount in Sweden, £500 at Bligny (near Paris), £700 at Frimley (England), and from £530 to £880 in Russia. Dr. Schmid reports that the expense of erection of the four largest Swiss sanatoriums with from 90 to 120 beds amounts to £220 per bed, whereas in the case of small sanatoriums this sum rose to £310. The inclusive daily expenditure, without reckoning the interest on the capital expended for erection, amounts to 2·20 francs in the Bernese sanatorium at Heiligenschwendi and to 4·45 francs in the Basle sanatorium at Davos Platz, an average of nearly 3*s.* a day. In Germany this sum varied in five Hanoverian sanatoriums from 2*s.* 10*d.* to 3*s.* 10*d.* per diem."

THE VENTILATION OF FACTORIES AND WORKSHOPS.

A VALUABLE report issued recently under the auspices of the Departmental Committee appointed to inquire into the Ventilation of Factories and Workshops has been prepared with a view chiefly of furnishing some general guidance as to the application of fans to the ventilation of factories and workshops. It would appear that serious mistakes are frequently made in the design of ventilating fans owing to a want of knowledge of elementary principles. The purpose of the report is to set forth the essentials of the efficient ventilating installation, and it is to be hoped that owners and managers of factories and workshops who are not already familiar with the principles involved will fall into line with the excellent suggestions laid down. The report bears the signatures of Dr. John Scott Haldane, F.R.S.; Mr. E. H. Osborn, the engineering adviser to the Chief Inspector of Factories; Dr. James Ritchie, reader in pathology at Oxford; and the secretary, Mr. C. R. Pendock, inspector of factories for the Bristol district. The last-named gentleman has also prepared an appendix which contains a large number of detailed illustrations and descriptions, together with the results of experiments carried out for the committee on the proper arrangement of branch ducts and other apparatus connected with ventilation. The committee points out, seeing that the circumstances in which fan ventilation needs to be applied vary greatly in different rooms and different processes of manufacture, the necessity of carefully considering the special conditions requiring to be dealt with in each individual case. In all cases of doubt it is desirable that competent skilled advice should be obtained and that only such firms as are known to have at their disposal the requisite knowledge and experience in regard to fan ventilation should be employed. There can be no doubt that the adoption of the carefully drawn-up suggestions in this report would greatly mitigate, if not reduce altogether, the serious mischief caused to health by the inhalation of the dust evolved in certain trades.

THE CHURCH OF ENGLAND MISSION TO HOP-PICKERS.

WE have received the annual report of the Church of England Mission to Hop-pickers, accompanied by an appeal for help in the conduct of its annual campaign which will shortly open. The mission was founded 30 years ago and has been productive of the greatest good in the performance of its evangelistic, medical, and social work amongst a very low grade of the community. In a leading article in our issue of May 4th[1] we referred to the extremely interesting report on the accommodation provided for the hop-pickers which was made to the Local Government Board by Dr. Reginald A. Farrar; in this he described the arrangements that have been made by some of the larger growers to provide decent accommodation for the pickers. We may now quote his words in the report which deal with the work of this mission: "Credit for improvement in the condition of hop pickers is largely due to missions. It is generally agreed that there has been of recent years, owing to the influence of missionaries, a notable decrease of drunkenness among hop pickers, and this in itself conduces to a higher standard of decent living. Apart from the religious work of the Church of England Mission to Hop Pickers, the social work done by this society does much to promote the comfort and welfare

[1] THE LANCET, May 4th, 1907, p. 1237.

of the pickers." It is amongst the so-called "foreign" pickers—i.e., those who are immigrants from large and sometimes distant towns—that the mission is active. It is obvious that the influence it is able to exert in raising the self-respect and standard of decent living amongst this class will result in an appreciation of the virtues of cleanliness that alone will be of value in safeguarding the public health of the hop districts, and we have an equal sympathy with the religious and social side of their work. Evidence of the care that the mission takes of the bodies of its charges is afforded by the fact that last season 20 trained nurses besides 40 missionaries and 33 lady workers were working for it amongst the 60,000 immigrant pickers in 37 parishes. Much of the work is voluntary and unpaid. The Rev. Francis G. Oliphant, honorary secretary to the mission, writes to us: "I will thankfully accept donations and subscriptions towards the £250 I have to raise annually, if sent to me at Teston Rectory, Maidstone, and parcels of illustrated literature for the reading-room and club tents, and bundles of old linen to aid the nurses in their ministrations to the sick, if forwarded to Wateringbury Station, S. E. and C. Ry." We gladly support this appeal, for we are assured that both the pickers themselves and the districts in which they are employed derive much benefit from the work of the mission.

A PLAN FOR THE REGULATION OF MOTOR TRAFFIC.

A LETTER from the chairman and secretary of the Motor Union of Great Britain and Ireland which has recently appeared in the daily press offers an admirable suggestion for the control of the motor traffic passing through small towns and villages on the main roads. There have been so many complaints from these quarters of inconsiderate and reckless driving on the part of some drivers of private cars that the Motor Union fears that further irksome, and at the same time ineffectual, speed limits may be imposed. To prevent the exhibition of so unpleasant a remedy by the police authorities the Motor Union has resolved to attempt to cure the disease by the adoption of its own remedy. This has taken the form of the provision of road agents on the main roads, who will be provided with a badge and whose duty it will be to warn drivers of dangerous places, and to advise them when they are about to pass through villages where special care is required. The coöperation of the local police authorities has been obtained in many instances, and the agents appointed are in most cases retired members of the police force; it is intended to employ army pensioners in this manner also. The scheme will be a credit to the enterprise and resource of the Motor Union if it is fairly worked, and if the road agents coöperate with the police, and are not used as a means of avoiding police-traps. For the necessity of police-traps is unfortunately a real one. There are undoubtedly a proportion of motorists, both owners and chauffeurs, who will never regard the sign-post warnings or the dictates of common sense in driving. Some of these at present are kept in order by the police. We understand that the Motor Union will now undertake that if any of these bad citizens commit preventable damage after receiving due warning from a road agent (the altered significance of the term is pleasing) he will neither receive nor deserve any sympathy in his subsequent dealings with the local justices. There are two abuses that need control badly—one is the close cutting of corners and the other the anointing of the number plate with vaseline or other adhesive substance in order that it may collect dust and become illegible. The agents could be particularly useful in stopping this latter law-evading device. We do not expect that the scheme will meet with the hearty support of the public all at once; the public has suffered and is suffering much from motorists, and will like to see how the Motor Union scheme works before commending it.

THE Department of Public Health of Queensland, in a bulletin dated July 6th, states that up to noon on that day no case of plague has occurred in Brisbane since May 31st. As regards the Cape Colony, the medical officer of health states that for the week ending July 20th no case of plague occurred in King William's Town. As regards the Mauritius, a telegram from the Governor received at the Colonial Office on August 9th states that during the week ended August 8th no case of plague was reported. As regards Hong-Kong, a telegram from the Governor received at the Colonial Office on August 12th states that for the week ended August 10th there were 4 cases of plague and 4 deaths from the disease.

SECOND INTERNATIONAL CONGRESS ON SCHOOL HYGIENE.

THE Second International Congress on School Hygiene terminated its work on August 10th and, as was probably to be expected, the view that the schoolmaster unsupported by medical training must be incapable of solving problems of school hygiene was generally adopted by all the meetings. This, in fact, is the message of the Congress, and if Sir James Crichton-Browne went further in declaring that its dominant note was that from henceforth schools must be more than ever under medical supervision and guidance we believe that he diagnosed the prevailing sentiment. It is a noteworthy fact that when the Education (Administrative Provisions) Bill was being considered by a Standing Committee of the House of Commons, a Member moved an amendment that only children should be inspected whose parents desired it, which was defeated by 32 to 1 after it had been pointed out that it was the duty of parents to subordinate their personal feelings upon matters concerning the health of the race.

Medical Examination of School Children in Gloucestershire.

Dr. MYER COPLANS (medical inspector of schools, Gloucestershire education committee) contributed a useful paper referring to the Gloucestershire experiment of 1904, which, he said, arose out of a desire on the part of the county education committee to improve the condition of certain elementary schools at which the attendance and consequently the grant-earning capacity had become seriously impaired by reason of the continued prevalence of contagious skin diseases among the scholars. It became his duty, however, to point out to the education authority that it possessed no statutory powers enabling him to carry out a scheme involving the medical examination of any child save with the parent's consent. Thereupon his committee gave him a free hand to devise and to carry out some scheme which, while satisfying the parents, would elicit especially the main facts relating to the degree of prevalence of contagious skin disease among the scholars. To that end he circularised the parents of some 8000 children and 97 per cent. gave their adhesion to the scheme which he then proposed. That scheme in effect was summed up by there being issued to each child a card which was intended to accompany the child throughout his or her school life. On one side of the card were particulars filled in by the parents concerning the child's ailments, the medical history, and questions as to tuberculosis in the family. On the other side were notes made by himself at regular intervals concerning the child's physical and mental development, condition of skin, state of vaccination, together with remarks when necessary on the special senses.[1] For each of the 60 schools under observation there was instituted a medical register on which was tabulated standard by standard the condition of individual scholars as shown by the card. He found the columns relating to the records of zymotic disease of great assistance in determining the probability of spread of any particular form of disease in any standard, department, school, or even village, and he recalled one case of a village concerning which the columns

[1] THE LANCET, March 11th, p. 653, and August 19th, 1905, p. 542.

relating to measles showed at a glance that there had been no instances of that disease for more than seven years. He was therefore prepared to advise school closure on the appearance of the first case of measles in that particular village. From the outset it was recognised on all hands that the voluntary element was to be the dominant factor; there was to be no threat of legal proceedings; moral suasion was the order of the day. Parents in general were given to understand that they at all times had direct access to him and that their suggestions would be welcomed. His own views on the subject of prevention of contagious and zymotic diseases among scholars were that detailed medical examination was unnecessary; while a cursory glance was usually sufficient to detect actual cases it could not be the means of stamping out the disease. The remedy lay rather in the provision of improved school furniture and school equipment; for each scholar nothing less than a separate desk and separate books, a separate drinking cup, and a separate peg for his clothing; while as for school buildings the tendency will have to be in the direction of better lighting, better ventilation, and more suitable offices, for he had in his mind the vivid picture afforded by the repeated inspection of some 60 rural and semi-rural schools. As to disease of the special senses, eye and ear, no doubt the appointment of inspecting medical officers would in course of time bring to light the large amount prevalent in rural as in other schools, when treatment and alleviation would naturally follow. The general adoption of any scheme of medical supervision would disclose the danger of the unsupervised private schools to which those parents who were offended by any scheme for medical supervision of their offspring would undoubtedly send their children. If such parents said that they considered the State medical supervision of their children as undermining of their own parental authority and a replacement of parental responsibility, it could be pointed out that in any case the parent had the last word in the matter. For as the law now stood the parent prevailed; he need not carry out medical advice or treatment even when tendered. All recent legal decisions confirmed that. No scheme of medical supervision could be of avail which did not recognise the powerful authority of the head teacher with his scholars and his influence with the parents; emphatically was that the case with infant schools, the head mistresses of which appeared to be in the position of guide, counsellor, friend, and confidante to those parents whose little ones were committed to their care. If at any time difficulty was experienced in the inception of any scheme perhaps it would be as well to hasten slowly and to make a beginning with the infant school, whose head mistress would be found to be "a power in the land"; then progress might be made through the lowermost standards, reaching last of all the girls of the highest standard. He made a point of that for the reason that he had found that a large proportion of the girls in the sixth and seventh standards were expected to look after themselves, the parents disclaiming responsibility. Further, the girls of those standards regarded the suggestion of medical examination as a slur, the actual inspection an indignity the memory of which would linger with them, "soon to be sent out into the world to earn their own livings." He might add that towards the end of the experiment the Gloucestershire branch of the National Union of Teachers held a meeting at which that method of medical inspection was discussed and approved of.

"The Personal Health Ticket in Schools."

This was the title of a communication from Dr. S. BERNHEIM and Dr. LE DIEUPART of Paris, who had organised a distribution of circulars to medical inspectors of schools containing inquiries on the health of the scholars. They declared in common with the majority of their professional brethren that an inspection, even when strictly and carefully made, was not sufficient to protect the pupil, his schoolfellows, and teachers. It was indispensable that every person, whether child or adult, in habitual attendance at a school, a class, or a lycée should have a personal health ticket. This record would be quite confidential and would be accessible only to the visiting medical officer or to the relatives of the person concerned. If the child were removed from one school to another the ticket would be passed on to the medical officer of the latter school either by the family or by the first medical officer. That ticket would be of importance for a child by showing the state of his health and the capacity for work. In that way tasks incompatible with his health would not be required of him, as happened too often, and a system of education would be arranged for him consistent with the bodily and mental powers. In case of infectious disease or threatening tuberculosis the child would not be allowed to attend school so that he might recover and might not infect his schoolfellows. At a later period this personal health ticket would be equally useful to the adult, who would be able to present it when the time for military service arrived and might in that way be saved a great deal of trouble. That record would be for him an official and authenticated document. Dr. Bernheim and Dr. Dieupart had observed among the teachers a great many tuberculous persons who were a constant danger to the children among whom they worked. For them also the sanitary health ticket was indispensable. Finally, they thought that the sanitary inspection of schools would be more effectual, because the medical officers would for that purpose have to keep books which would require to be regularly brought up-to-date. The adoption of the proposed scheme would involve an immediate and thorough improvement in the sanitary inspection of schools.

A paper on

The Floor as the Principal Factor in Contagious Diseases in Schools.

This subject was contributed by Dr. BERNHEIM. After insisting on the importance from a sanitary point of view of all parts of the structure of a school building Dr. Bernheim declared that hygienically the floor was the most important thing of all. In proportion as it was of homogeneous structure and easily cleaned and repaired, so was the health of the establishment good. The worse the condition of the floor of a class-room the more sickness there was among the pupils. Dr. Bernheim had examined the dust from well-worn floorings in old buildings and he had found in it many virulent bacteria. He strongly recommended certain floor materials, having a basis of asbestos, as cheap, durable, and easy of application.

The Medical Inspection of "Public Schools."

Dr. CLEMENT DUKES (physician to Rugby School), dealing with "a record of the physical examination of 1000 boys at their entrance on public school life," said that it was somewhat depressing to register in the twentieth century the large number of acquired preventable deformities which were presented by the most favoured class of boys in Great Britain. (We are publishing Dr. Dukes's valuable paper in an early issue of THE LANCET.)

Dr. T. DYKE ACLAND (London) emphasised the need for the inspection of all residential secondary schools in matters relating to sanitation and hygiene. There was a tendency to limit the work of the school medical officer to the comparatively unsatisfactory work of attendance on the sick and to overlook that far more important branch of his work—preventive medicine—by which sickness might be prevented and the better development of the boys under his care secured. That public schools were in various ways behind the times seemed to be due in the first instance to their being practically free from competition. How many, he asked, of our public schools would pass the ordeal if inspected on the lines required for public elementary schools? All endowed schools, two only excepted, were liable to inspection; two or three had already voluntarily applied for inspection. It was to be hoped that the time was not far distant when all residential schools would be subject to independent criticism and report; and further, would be required to publish annually what might be called a "health audit."

In the course of the work of the Congress Dr. OEBRECKE (Breslau) urged that the school medical adviser should not be in private practice, but that his work should be that of supervising. He dwelt upon the desirability of coöperation between the medical man, the teacher, and the parent.

Dr. CUNTZ (Wiesbaden) maintained that the work of the school medical adviser should be to notify and prevent sickness or disease and to look after the hygiene of the school and class rooms, while the medical treatment of the children themselves should be left to the family practitioner.

The Attitude of Parliament.

Mr. W. J. WILLIS BUND (chairman of the Worcestershire education committee) presented some practical administrative hints with regard to the medical inspection of school children provided for in the Bill now before Parliament. He said that ratepayers protested loudly against the appointment of new officers at high salaries, but if a staff insufficient in number and qualifications were appointed it

would only bring about failure; a weak staff would make a complete inspection impossible; an inefficient staff would do far more harm than good, it would be far better to have no inspection at all. An efficient staff must be well paid with regard to the work to be done; a salary fixed on the scale of that now paid to district medical officers of health would not secure efficient inspectors.

Sir JAMES CRICHTON-BROWNE (London) said that no teacher in these days could be regarded as thoroughly competent who was altogether ignorant of physiology or indifferent towards it, and so essential was a strict and scientific observance of its monitions, not only to sound and successful education but to national integrity, that the regular medical inspection of schools and school children, either as a state institution or under local organisation, had been established in France, Germany, Belgium, Austria, Norway, Switzerland, Russia, Servia, the United States, Japan, Egypt, the Argentine Republic, and Chili, and would, it was hoped, be adopted before long in this dilatory country.

The Health of the Teacher.

A special section devoted to the study of the needs of the teacher was presided over by Dr. T. J. MACNAMARA, M.P., whose thoughtful opening address is commented upon in a leading article.

The Play of School Children.

This subject was not neglected by the Congress and much interest was taken in a paper read by Mrs. BLAND-SUTTON on the work of the Children's Happy Evenings Association, which was the pioneer in the work of organised recreation. There were 136 branches in London and many affiliated branches in big towns in England. The association gathered together every week during the greater part of the year over 24,000 children, and in this work enlisted the services of over 1300 voluntary workers. Experience had convinced the association that this was a work in which the voluntary element must always reign supreme. Putting aside the cost to the ratepayer of an elaborate compulsory system of recreation estimated to cost £300,000 a year there was the objection that the work would become a mere matter of routine. In confirmation of this Mr. PETT RIDGE said that the work of the Children's Happy Evenings Association was being carried on without costing the ratepayers a penny. During the last 18 years the association had taught the children of London that amusement was not necessarily confined to noisy quarrelling and they had encouraged cleanliness. He did not think that a combination of paid and voluntary workers would prove satisfactory in a large scheme. After Dr. GULICK, President of the Child Playground Association of New York, had said that the games of England were the final word to the rest of the world, Mr. COPE CORNFORD spoke in favour of the Children's Happy Evenings Association. He pointed out that the defect of the official system proposed was that it would take away the responsibility of parents in regard to the play of their children.

Should Children Attend School before the School Age?

In the seventh section there was a crowded attendance on Wednesday morning to hear Dr. ARTHUR NEWSHOLME'S (Brighton) paper on the Limit of Age for School Attendance. Professor W. OSLER was in the chair and many members showed great eagerness to speak; indeed, very warm feeling was manifested. Dr. Newsholme's object was to denounce the growing habit of sending children to the elementary schools before the school age, urging that no child should be admitted who was not five years old. In 1904–05 elementary education in England and Wales cost £18,398,616, or 72*s.* 10*d.* per scholar, and he estimated that of this sum £1,749,711 were spent on children who were only three to five years old. They overcrowded the schools, contracted and spread infectious diseases, and did not lead natural lives. The speaker quoted the result of tests made of the atmosphere in such schools and in the poor homes from where the little children came, showing that the school was worse than the home. There were, however, exceptional children, notably those whose mothers went out to work, for whom it was a benefit to be at school before the age of five years, but these scarcely amounted to more than 10 per cent. of the total attending school before the age of five years and for such cases crèches should be provided.

Dr. A. H. HOGARTH (London) read a paper in the contrary sense. The age from three to five years was as important as any other period. The remedy to existing grievances was not the exclusion of children of that age but the improvement of the infant schools or class rooms. They must select teachers possessing special aptitudes for dealing with these very young children; the surrounding sanitation had to be improved and the curriculum better adapted to their age. Two objections to the presence of such young children might be made on medical grounds. First, that it produced an increase in measles. On the other hand, the school was a means of teaching the parents the importance of this malady and at school a better watch was kept for the after-effects which were the most dangerous aspect of this disease. If there were more cases of measles there was no evidence to show that there was an increase of mortality from measles resulting from early attendance at school. The cases cited to demonstrate that the air in schools was more unwholesome than in the homes were old and only proved the obvious fact that there was room for better sanitation. It had been said that before five years the children derived no educational advantages, but what did this mean? Dr. Hogarth did not think that such children should be taught to write and read but to play in such a manner as to help the development of their muscles. Our methods were faulty because they were repressive and kept children hours without laughter. The children must be taught to laugh, to shout, to scrub, to put things in order, and all kinds of manual efforts that interest and create exercise.

Mr. WILLIS BUND thought that no general rule would apply. There were such wide differences, notably between town and country schools. In one case it was the school, in another it was the home which was the most unhealthy. To propose to send these children to crèches was no solution because there were grants to schools and not to crèches; but crèche methods could be employed in schools. As for disease, a good service was rendered in getting early history of cases.

Mr. R. C. ELMSLIE (London) agreed with this latter point. Tuberculosis of the bones and joints was often noticed between the ages of four and six years and if treated thus early serious deformities could be prevented. The same might be said of rickets, some forms of paralysis, and so on. They had more to do than to educate: they had to detect and to prevent.

Dr. H. FRANKLIN PARSONS (London) pointed out that in many schools younger children accompanied their elder brothers; they were not entered on the school books but they occupied the school floor and helped to vitiate the air. He was in favour of keeping the children under the school age, not out of ideal schools, but out of the schools such as they exist. They were far better off in a fairly well-regulated home. They should be careful not to lower the fundamental instinct animating all warm-blooded animals, that of keeping the offspring by the mother during the earlier years of life. Nor was it generally the case that mothers sent these very young children to school because they had to work; as often as not it was merely because the absence of the children gave the mothers more time to gossip over the garden wall.

Mrs. KIRK rose to speak from the teacher's point of view. At first she thought children should remain at home till the age of five years, but she would be puzzled how to manage a school were it not for these very young children. She was able to train them and their example when they grew up kept the class of older children in order. It was not the poor that behaved so badly but all classes. Then these very little children from very poor homes were made to keep themselves clean and to take exercise, and the mothers were invited to the school in the evening and received much educational advice. The mothers' instinct was good but they were dreadfully ignorant. Then these little children were not kept in badly ventilated class-rooms but in play-yards and in the open air. They had many toys, were taught to build and to play, and as for measles the speaker found cases were much more frequent after than before the holidays.

Mr. MUNDELLA said that for 50 years the schools had been open to these young children and he doubted if it would be legal to exclude them now. The expense had been exaggerated. The crèche or infant school should be under the same roof or close by the general school and under the same authority.

Dr. H. MEREDITH RICHARDS explained that at Croydon they did not exclude children, but would not allow overcrowding. At a school in the slums the children under five years who attended belonged to the better class. What was needed was to exclude the children who went to school and compel the attendance of those who did not go.

Dr. R. H. CROWLEY (Bradford) was strongly for the principle that children should be at home. There was a danger that

children were over-stimulated. It was a slur to our civilisation that there should be so many homes unfit for children to live in. But there were also many schools utterly unsuitable and much money would have to be expended in rebuilding them.

Miss ADLER, speaking as a school manager, said no one could see the homes she had seen and wish children to remain in them. There were but two or three rooms. There was no space for spontaneous development. The mother had to scrub, to mend, and to cook, and the children went out into the streets, where they acquired bad language, vices, and vagabond habits that made them dislike school, and which it was most difficult to correct. If, however, they went to school before the school age they acquired a liking for school and were easily trained.

Mr. PERCIVAL SHARPE thought both sides in the discussion were right; the difference was due to the starting point. The old-fashioned infant schools with the "baby galleries" were an abomination, but children would be better at a model school than at home. Economic conditions were changing; we could not consider the extra expense but only the extra advantages.

Dr. CUNTZ expressed his great surprise at the whole discussion. In Germany the law was emphatic. No child could be admitted at school before the age of six years, and if at all delicate he might remain at home till the age of seven. But then there were no such awful homes in Germany as had just been described by the previous speakers. Widow mothers and others in poor circumstances were widely supported; there was no such degrading distress as seemed to prevail in England.

Mr. H. B. BRACKENBURY (Hornsey) said that in his district there was no dense mass of poverty and they did not admit children in the school under the age of five years. This helped to postpone measles till that age, which greatly reduced the danger of that disease.

Miss K. PHILLIPS urged that out of the 490 provided schools of London many were conducted on the lines described by Mrs. Kirk, but in Sussex she had seen a school with a gallery for 60 children and only a young girl to watch them for five hours. In bad homes children could sprawl, if it was only in the gutter, and sleep.

Lady O'HAGAN insisted on the great difference between infant and ordinary schools. No general rule was possible. There must be variety. When the "knocker up" came at four or five in the morning the breakfast the mother provided at that hour was a horrid affair, and when she came home she was often too tired to give more than bread-and-butter for dinner. Certainly the children of such a home were better off in a well-appointed infant school.

Dr. CRONIN (New York) explained that the law had been amended within the last three years and no child under the age of six years was admitted in the schools. He had then to prove his age, and this law had helped to secure a more punctual registration of births. If this congress would decide that infant schools were a necessity he felt sure New York would not hesitate to give the children "the proper kind of mud." As they had got to grow they might as well grow scientifically instead of allowing children three years old to rule their mothers.

Mr. ABEL (Nottingham) thought that children should remain at home till the school age; but the higher they rose in the animal scale the less instinct ruled and the more was the organised State called upon to fulfil the part of the mother.

Dr. NEWSHOLME now replied, pointing out the inconsistencies of his critics. Thus they had been told that infant schools were to be recommended as good sleeping places; others said that the infants learnt no bad language. In that case they should remain there all day. Others said that it was the best way to discover early disease, or to avoid being run over, or to teach children how to play. But they all knew how to play and only needed the opportunity. The question was whether the actual school was better than home and not the ideal school sketched by Dr. Hogarth. Ventilation had not been improved. The real point was whether they were to encourage the employment of women. He thought not. They should mind the children.

The Closure of Schools or the Exclusion of Patients.

The members of Section II. had attended the above debate as well as the members of Section VII. and there were times when the vast theatre only afforded standing room, but the moment the discussion closed there was a rush for the doors. Other papers were read subsequently, but there was not such a good attendance. Among the various authors may be mentioned Dr. WILLIAM BUTLER (Willesden) who spoke on the influence of school attendance on the spread of non-notifiable diseases, and Dr. J. R. KAYE (Wakefield) who communicated a paper entitled "Closure *v.* Exclusion in Relation to School Diseases." The experience the speaker had acquired as medical officer of the West Riding of the Yorkshire county council led him to the conclusion that in the case of infectious diseases individual children or perhaps a whole class should be excluded. This generally sufficed and there was no need to interfere with the progress of education by closing the entire school. But in actual practice it was financially more advantageous to close the entire school than to exclude a few pupils. If some pupils were excluded this lowered the average attendance at the school and the grant to the school was reduced in proportion. If, on the other hand, the school was completely closed then due allowance was made and there was no loss. Dr. Kaye thought that a means should be devised to prevent a loss resulting from the taking of proper precautions.

On the Thursday morning Dr. C. J. THOMAS, assistant medical officer of the London County Council Educational Department, presented a paper well charged with statistics on measles. At Woolwich systematic investigations had been made in respect to 5512 children and it was found that of the children entering the infant schools at the age of three years no less than 54 per cent. had already suffered from measles. When they left at the age of six years, then 84 per cent. had contracted this disease. After the first case there was generally quite a number of cases some nine to 11 days later. Woolwich also was divided in half; on one side the policy of school closure was carried out rigorously, while in the other half only the patients were excluded. This experiment demonstrated that the most drastic school closure made no difference whatsoever in the number of cases. The only means of hindering the spread of measles was the building of more sanitary, better ventilated, and larger schools, and the employment for the sick of properly trained nurses who would know how to minimise the danger of infection. A very lengthy discussion followed this paper and Dr. SIDNEY DAVIES, medical officer of health of Woolwich, in a carefully prepared paper, fully confirmed the above views.

Tuberculosis and Schools.

In this section Dr. W. OLDRIGHT, professor of hygiene at the University of Toronto, read a paper on the Schoolroom as a Factor in the Production of Tuberculosis. According to the Ontario statistics women teachers were especially susceptible and the same was noted in the United States. The fact was that in rooms where there were many persons together each person required 3000 cubic feet of air; and as in practice the air could not be changed more often than about three times in an hour every person should have 1000 cubic feet of space. Nothing of the sort existed and there was not only a lack of air but chalk dust and all kinds of irritating particles were present in the vitiated air. In some cases the mortality among women teachers from tuberculosis was as high as in the most dangerous trades, such as those of printers and stone-cutters.

Dr. LOUIS GOURICHON, formerly President of the Society of Medical School Inspectors of Paris, presented a paper written in quite a different strain, in which he stated that tuberculosis was relatively a rare occurrence among the male and female teachers of the Paris elementary schools, and when there was a case it was generally contracted outside the school. This disease could not be considered as a professional malady so far as teachers were considered.

But, again, and in contradiction to the above, Dr. C. C. JESSEN, physician to the public schools and president of the Society of Physicians of Copenhagen, presented a paper in which he said that the mortality from tuberculosis among the Danish teachers who were insured was twice as high as among the insured of the general population. He therefore urged that no teacher should be appointed unless he could present a medical certificate to show that he was free from tubercle of the lungs and larynx. On the other hand, all teachers dismissed for tuberculous disease should receive a pension equal to at least two-thirds of their salary.

Ringworm in Schools.

There were also many papers on skin diseases and ringworm. Dr. P. S. ABRAHAM thought the present methods of prevention in the metropolitan elementary schools absolutely

inadequate. He presented a formidable array of statistics on the actual prevalence of ringworm in the West of London schools. He argued that as the law forced children to attend these schools the State should see that they were properly treated for the diseases they contracted while at school. As a first step in this direction every child at school should be thoroughly and periodically examined by a competent medical man.

On this question Dr. MEREDITH RICHARDS read a paper in which he explained that at Croydon cases of ringworm when excluded from school might either be treated privately or else gratuitously by the local authority. At the municipal dispensary sometimes drugs and sometimes x rays were employed. In the latter case the average duration of the treatment did not extend over eight weeks, whereas with drugs the time required was much longer. As there might be a relapse all cases should be carefully watched for three weeks after recovery.

Dr. HARRY G. CRITCHLEY (of the educational medical staff, likewise of Croydon) contributed a paper showing that a tenth of the absences from the London schools were caused by ringworm and Croydon lost £300 a year in education grants in consequence of ringworm. The microsporon Audouini he did not think was amenable to treatment, but the larger spore, the trichophyton megalosporon, could be rapidly and safely cured by the use of x rays. This had caused a great reduction in the number of pupils at one of the two ringworm schools of the Metropolitan Asylums Board which was formerly always full.

Dr. V. HÜTTEL, school physician of the City of Prague, communicated a paper summarising

The Various Perils Besetting School Children,

not omitting spinal curvature and nerve diseases due to overwork. All this clearly showed that to each school a physician must be appointed as the guardian of the pupils' health. This medical adviser must have not only the duty to advise but the power to see that his advice was followed. Dr. Hüttel may be said to have summarised the upshot of all the discussions held in Section VII. Thorough medical inspection of all school children, this preferably under the national health authority—namely, the Minister of Public Health or the nearest approach to such a Ministry as exists—was evidently the chief remedy for existing evils which the section was able to suggest.

The last day of the Congress was devoted to pleasure excursions and many members travelled to Cambridge, others to Haslemere, to Hindhead, and to Brighton. A popular excursion was the visit arranged to Windsor Castle and Eton College and the trip organised to Oxford found many adherents.

THE INTERNATIONAL ASSOCIATION OF THE MEDICAL PRESS: COMMITTEE MEETING AT LONDON.

(FROM OUR SPECIAL COMMISSIONER.)

(Concluded from p. 404.)

AT the conclusion of the morning sitting of the first day the committee was entertained at lunch at his house by Mr. J. Bland-Sutton who entertained his guests in his marvellous reproduction of the Persian hall built by Artaxerxes Mnemon. Here they were met by other members of the British Association of the Medical Press, notably the President, Mr. Thomas Wakley, and Dr. H. P. Cholmeley of THE LANCET, Mr. H. W. Armit of the *British Medical Journal*, and Mr. L. E. Creasy of the *Clinical Journal*, and honorary secretary of the association. Being a fluent speaker in French, which is the official language of the association, Mr. Adolphe Smith was appointed to speak on behalf of the British branch, and in the circumstances felt bound to give some explanation concerning the hall in which they were assembled. He pointed out that the inscription on the wall showed that the original hall, which Mr. Bland-Sutton's archæological knowledge has enabled him to reconstruct, was placed under the protection of Ormuzd, Anahita, and Mithra—that is to say, the good forces in nature, the feminine forces in nature, and the solar god or male fertilising force, and he explained the symbolic meaning of the designs and decoration with which everything was in harmony, from the esoteric meaning of the jewels which Mrs. Bland-Sutton was wearing to the flowers that decorated the table and the character of the menu.

Professor POSNER of Berlin and Dr. BLONDEL supported the toast proposed in honour of Mr. and Mrs. Bland-Sutton. The builder of the palace, so beautifully reproduced, was called Artaxerxes Mnemon, said Professor Posner, and Mnemon was an additional name given to him on account of his retentive memory, but it would need no exceptional gift of memory for all the guests to recall the present scene.

Dr. DOLÉRIS, who spoke subsequently, also insisted on the charm of the reception and was especially grateful for being admitted into the intimacy of a British home.

In responding, Mr. BLAND-SUTTON expressed his gratification to find that not only the artistic beauty but the symbolic meaning of the Persian hall which he had reconstructed were so fully understood and appreciated.

When the banquet had terminated the members of the committee went upstairs to the drawing-room and there resumed their labours. The grievances and the difficulties described in the reports made at the morning sitting were now discussed with the object of finding a remedy.

Dr. DOLÉRIS lamented the fact that the medical press could not hope to obtain any help from French manufacturers; they would not betray medical men who had offered to render them services, yet the situation was absolutely intolerable. The articles that were written for manufacturers and paid for by them were so skilfully worded that they deceived medical men themselves. Such deception was most injurious to the public and to the profession, but how was it to be prevented?

Dr. DÉJACE (Belgium) said that the prophylactic action taken by the German Association of the Medical Press showed the use of such societies as theirs. Here was an inspiring spectacle of the honest manufacturer and the honest journal seeking to help each other. In Belgium they would certainly endeavour to profit by the work and example of the Germans. But then, of course, it must be recognised that in Germany the customs and the laws were very different. For instance, in Germany the police bought drugs, analysed them, and not only published the result but stated what it cost to make the drug. This was done to prevent the public being deceived either as to the nature of the article or of the price at which it ought to be sold.

Professor POSNER pointed out that a journalist in his own country would probably be able to distinguish between a legitimate criticism or notice and a "puff"; but abroad this could not be done so readily. For instance, a German journalist reading a French article written about some French product would be more easily deceived. Therefore the English and the French should not harbour what had been rejected in Germany. The Germans, on their side, would pay full attention to warnings sent them by the other nations that formed part of the International Association of the Medical Press. It often happened in Germany that a manufacturer would advertise in a medical journal and at the same time would send an article praising the articles advertised. As a rule, the journal would refuse to publish such as article, but this might not prevent the manufacturer from advertising. Later the manufacturer would send another article in which the most guarded mention is made of his products, and as the article would be thoroughly scientific and in reality very ably written it might get published, but the writer was paid by the manufacturer. This ought not to be allowed.

Dr. BLONDEL explained how this sort of thing was sometimes managed in France. A medical man might be engaged in research and was doing good work. He might be approached by a manufacturer who would ask him for his genuine opinion. To give such an opinion experiments were necessary, guinea-pigs and various things would be needed, and, of course, it was only fair that the manufacturer should reimburse such out-of-pocket expenses. This he did not fail to do and on the most lavish scale. As the drug or whatever it might be is in those cases really good, an excellent report was likely to result from such experiments. This was not an easy situation to deal with as it is so very difficult to draw the line between what was legitimate or otherwise. Then there was the great question of the entire article and the synopsis of the article. The article was often an obvious puff but a summary of the article sent round to the press might lead people to think that it was nothing of the sort. He thought that the

journals belonging to the association should only quote the German articles that appeared in the journals of the German Association of the Medical Press, for they at least did exercise a veritable control. This was the beginning of a really serious action, and if it continued successfully the International Association of the Medical Press would soon become a great power for good.

A lengthy conversation followed as to what could be done that would not be illegal. A black list in Belgium would probably be considered illegal and in all countries it is difficult to point out that a person is not pursuing an honourable course without incurring the risk of an action for libel. Also, as the French delegates pointed out, there was no unanimity as to what was honourable or not. There were men working for months and years at scientific research for which they received no pay whatsoever. Might they not occasionally endeavour to make ends meet by undertaking scientific experiments for some manufacturers? It might be said they were special pleaders and made the best of the case. If that was so, what was the difference between them and a barrister who pleaded to the best of his ability for a prisoner whom he nevertheless believed to be guilty? All these were very difficult, delicate matters on which it was not possible to dogmatise. But the Germans had succeeded in putting their hands on something tangible. For medical men to go round from manufacturer to manufacturer offering to so "cook" the record of their cases that it would serve to advertise some drug was obviously infamous, and this not merely in the professional sense of the term. Such flagrant cases must be stopped and stopped internationally. There was some difficulty in framing a proposition to express this determination, but, finally, the committee agreed on the following text, which was unanimously adopted:—

The International Association of the Medical Press, taking into consideration the aticles written by medical men in favour of medicinal products, urges the national associations to exchange with one another information on the character of these articles and of their authors.

The next question discussed related to the necessity of refusing to publish certain sorts of advertisements. But if one paper, actuated by high conscientious motives, refused to publish an advertisement the good object held in view would not be attained if the other papers did not also refuse to insert the advertisement. Here, as in almost all these questions, it was necessary to act in concert. Fortunately, in Germany some 50 periodical publications had been brought into line and it sufficed for one of these papers to refuse an advertisement and all the others would also refuse the advertisement. But now the Germans were anxious to extend this action beyond the frontiers. They desired to know what were the sort of advertisements that were condemned in England or France and they would see that none of them appeared in German papers. On the other hand, they asked the English and French papers not to open their advertisement columns to what in Germany they considered to be unworthy of their profession and of science. As a result of this discussion the following motion was adopted:—

The International Association of the Medical Press urges all the National Associations of the Medical Press to come to an agreement in regard to the medical advertisements that should be refused.

This terminated the discussion and the resolutions arising out of the German report.

In regard to the French report Dr. DOLÉRIS said that nothing short of a complete revolution would mend matters in France. Fortunately, they have now something to go upon; they could quote the German example. But he inquired how the Germans managed to keep dishonourable members out of their association.

Professor POSNER explained that in Germany there was an executive committee of five which decides, but it was always a difficult and delicate matter to reject a member. He thought that no new member or journal should be admitted without a proposer and seconder who would be prepared to answer all questions put.

Dr. DOLÉRIS said that something of the sort used to be done in France, but now there was a great deal of canvassing and there would be a large meeting and a large vote, but a big society or assembly could not possibly and discreetly investigate very delicate matters touching the honour of the candidate.

The French delegation did not present any resolution. As for the British delegates, they only intervened in the discussion to explain how matters stood in England and in several instances were able to state that some portion of what was desired had already been realised in this country.

In the evening the committee, together with some friends, were entertained to dinner by Mr. and Mrs. W. Arbuthnot Lane at their residence in Cavendish-square. When the time for the toasts was reached Mr. ADOLPHE SMITH was again the spokesman for the British contingent and he expressed his confident belief that all who had helped the present meeting had helped a great cause. Their host, Mr. Arbuthnot Lane, had decorated his table with three colours. The flowers on the table were all red; this was the colour of life and energy. But they hung in garlands over green moss and green was the colour of hope. All else was white and white was the colour of purity. In thus meeting together they hoped to acquire the energy to purify the press. French, German, and Belgian delegates followed with well-chosen words expressing their gratitude to their English hosts for their hospitality and for the true friendship and kindness with which they had been received.

On the morning of August 4th the committee met again in the Persian hall of Mr. Bland-Sutton's house. The question of congresses was now discussed. Professor POSNER gave assurances in regard to the Fourteenth International Congress of Hygiene and Demography which is to meet in Berlin at the end of September in the building of the German Reichstag. The Bureau of the Press was at the disposal of members of the International Association of the Medical Press, with its 68 seats, electric light, and every convenience. Free press cards would be given granting every privilege, but only to members of the International Association of the Medical Press. Representatives of other journals which were not affiliated would receive ordinary press cards which would only admit them to the meetings and discussions. This was an opportunity of making the medical press throughout the world understand that an international association was in existence and that it was a decided advantage to belong to this organisation. Professor Posner thought the Congress of Hygiene would be a great success, particularly as the more important journals of Berlin had been asked to send representatives to the organising committee.

In regard to the next meeting of the committee of the International Association of the Medical Press, Professor POSNER invited the committee to meet next year at Berlin when convenient, but probably shortly after Whitsuntide and when the holiday rush was over. They would then have to prepare for the Budapest Congress and for the general assembly of the International Association of the Medical Press, which must be held immediately before the Sixteenth Medical Congress in 1909.

A long discussion now ensued as to whether, as the medical press was now a permanent international organisation, it could do anything to modify the present chaotic condition of affairs in regard to international scientific and more especially medical congresses. Undoubtedly a permanent international bureau should be created to regulate and to prevent the clashing of congresses and to limit their number. The Medical Congress came to an end each time. The president and secretaries of the next congress had to begin all over again. They could not, and did not, profit by experience acquired at previous congresses and the repetition of blunders was only varied by the idiosyncrasies of the different countries where they met. At Lisbon the Portuguese seemed to resent outside interference and it was feared that if there was a permanent international secretary he would acquire too much power. They might, however, have an elected international committee that would negotiate with the secretary of the next congress. Some organisation must be formed. At present everyone who chose started a congress just when and where it might suit his fancy. There must be a central bureau to prevent the confusion this caused. Small countries were special transgressors in this respect, for they knew but little of the history of previous congresses.

Sir FELIX SEMON spoke at length on this subject and gave an amusing account of the adventures of the section of Laryngology. Thus in 1891 it was treated as a separate section but as some officer concerned was not popular it was converted into a subsection of medicine so as to prevent personal dispute. At Copenhagen, as there was no local laryngologists of sufficient repute to preside, the section was merged into another section. At Washington, in 1897, the president was deposed because he consulted with a homœopath and the section was merged into another section. At Berlin the section was a great success. At Rome it was united with the otologists, though both parties objected. At Moscow they

were made into a subsection and united with the dentists. At Paris they were again put with the otologists. All the laryngological societies had passed resolutions against such treatment and this time they were allowed to separate at the eleventh hour and form two sections. As a result their meetings proved a great success. But when they appealed that the same course should be pursued at Madrid the Spanish took absolutely no notice of their communications, so nobody went to the congress. At Lisbon they were told they must work with the dentists, and therefore they again abstained from attending. Thus, since the Paris congress of 1900 they had not met at all. They did not want to separate from the medical congress but they had been forced to do so, and there was to be a special congress of laryngology at Vienna next year. As they also proposed to attend the general Congress of Medicine at Budapest, after failing to meet for eight years, they would have two congresses in two years. If they were treated thus by their medical colleagues how could they ask governments for any sort of favour, such as the creation of a chair of laryngology? Then many blunders were made by local committees in nominating honorary presidents. The experience acquired at one congress must be utilised at the next congress; there must be continuity.

Dr. BLONDEL agreed and related that the dentists had encountered similar difficulties and there were terrible disputes as to whether a dentist could be a dentist unless he was also a medical practitioner. He did not think one nation was competent to select presidents of honour from among the distinguished men of another nation.

Professor POSNER said he had been asked to nominate three foreign presidents.

Dr. DEJACE said that in Belgium the Government made such nominations and they would appoint a medical man not because he had any special experience in the question at issue but because he was a Senator.

Dr. DOLÉRIS remarked that there was no section of laryngology at Madrid because there were no distinguished laryngologists in Spain. The same reason applied to Lisbon but it did not apply to Paris, Berlin, or Vienna.

Mr. ADOLPHE SMITH urged that the management of a congress should be intrusted to those who had experience of congresses and were good organisers and not to a person merely because he held a high position or was distinguished in some branch of science. Such eminent men were likely to be too busy to attend to the drudgery and routine details of a congress.

Dr. DAWSON WILLIAMS pointed out that for the much easier and simple purpose of the annual meetings of the British Medical Association they had found it necessary to institute a Court of Appeal. The proposals coming from the locality where the meeting would be held were generally accepted. Still, it was sometimes necessary to correct them. Finally, the committee adopted the following motion:—

> The International Association of the Medical Press considers that it is necessary to establish a continuity between the international congresses and expresses the desire that a permanent bureau be created. This bureau should consist of the presidents and general secretaries of the national committees of the former congresses and the bureau of the forthcoming congress, together with the general secretaries of the former congresses of medicine and the general secretary and the president of the International Association of the Medical Press.

The committee now took the Budapest Congress into consideration. Mr. ADOLPHE SMITH related that when the Congress of Hygiene met there nothing whatsoever was done for the press. Fortunately he found an energetic French colleague and together they prepared a general strike of the press and this brought the congress to its senses and the necessary facilities were finally obtained. So it might be well to take time by the forelock. Speaking also from personal experience Dr. BLONDEL confirmed this opinion and proceeded to enumerate all that was needed. The various items mentioned were approved, as also that the general assembly of the press association should meet at Budapest in 1909.

After a few words about the right of reprinting articles Dr. DAWSON WILLIAMS moved the following proposition, which was adopted unanimously:—

> The committee of the International Association of the Medical Press, taking into consideration the question of the rights of authors, is of opinion that the author of an article published in a medical journal has not the right to authorise commercial firms to reproduce his article without having previously obtained the sanction of the editor or publisher.

A few more observations were made as to the regulation of controversies in journals and this concluded the business.

The committee now rose and proceeded to Oddenino's Imperial Restaurant in Regent-street, where they were entertained to a farewell luncheon by Mr. Thomas Wakley, President of the British Association of the Medical Press. After luncheon Professor POSNER proposed the health of Mr. Wakley. He had often, he said, longed to see England, but somewhat dreaded the journey. However, having taken that step, he was now gratified with the rare sight of an English blue sky. Abroad, if they had not been taught to admire the English climate they had long ago learnt to admire the authority and influence which THE LANCET had acquired. He begged Mr. Wakley to believe they were all very grateful to the President of the British section and would be pleased to explain in other lands the high position to which the British medical press had attained. Their association was as yet in its infancy, but those who had helped in its rearing would in the future have good reason to be proud of their work. Dr. BLONDEL spoke in grateful terms of his long relations with THE LANCET and its Editor and the toast was drunk heartily. Mr. WAKLEY replied, expressing his gratification at being able to help forward so good a cause and his pleasure at welcoming the representatives of the press of different nations.

Dr. DAWSON WILLIAMS now proposed the "Health of the President of the International Association of the Medical Press, Professor Posner." He praised the business-like manner in which Professor Posner had conducted the business and thought more solid work had been done at this London meeting than on any previous occasion. They had dealt with very difficult ethical questions and yet had passed resolutions which were likely to meet with the approval of the medical profession in all countries. The toast was seconded by Sir FELIX SEMON. In responding Professor POSNER proposed "The General Secretary," Dr. Blondel, who had been the soul of the society. Dr. DÉJACE, for Belgium, and Dr. DOLÉRIS, for France, proposed the health of the Honorary Secretary of the British Association of the Medical Press, Mr. L. Eliot Creasy, who had organised in so complete and pleasant a manner all the details of the reception of the committee in London.

This concluded the series of toasts and the congratulations which were the natural outcome of the two days' useful work carefully done and successfully accomplished. The members of the committee now parted company, some to return to their own country, others to attend the International Congress on School Hygiene.

VITAL STATISTICS.

HEALTH OF ENGLISH TOWNS.

IN 76 of the largest English towns 7229 births and 3637 deaths were registered during the week ending August 10th. The annual rate of mortality, which had been 12·4, 11·9, and 11·7 per 1000 in the three preceding weeks, was 11·8 in the week under notice. During the first six weeks of the current quarter the death-rate in these towns has averaged 12·1 per 1000, the rate in London during the same period being 11·9 per 1000. The lowest death-rates in the 76 towns last week were 3·8 in Willesden, 5·0 in Walthamstow, 5·2 in Hornsey, and 5·5 in King's Norton; the highest rates were 17·4 in Blackburn, 17·7 in Sunderland, 17·8 in in Rochdale, 18·6 in St. Helens, and 21·7 in Stockton-on-Tees. The 3637 deaths in the 76 towns last week included 378 which were referred to the principal epidemic diseases, against 397, 396, and 362 in the three preceding weeks; of these, 104 resulted from diarrhœa, 94 from measles, 85 from whooping-cough, 40 from scarlet fever, 40 from diphtheria, and 15 from "fever" (principally enteric), but not any from small-pox. No death from any of these epidemic diseases was registered last week in Bristol, Brighton, Plymouth, South Shields, or in 12 other of the 76 towns; the annual rate from these diseases, however, ranged upwards to 2·7 in Walsall, in Blackburn, and in Merthyr Tydfil, 2·9 in Wigan, 3·9 in Stockton-on-Tees and in Cardiff, and 5·1 in St. Helens. The fatal cases of diarrhœa, which had risen from 39 to 78 in the four preceding weeks, further increased to 104 last week, and caused death-rates ranging upwards to 1·3

in Coventry, 1·5 in Warrington, 1·6 in Bootle, 1·7 in St. Helens, and 2·4 in Smethwick. The deaths from measles, which had been 113 in each of the two preceding weeks, declined to 94 in the week under notice; the highest death-rates from these diseases were 1·1 in St. Helens, 1·9 in Blackburn, 2·2 in Walsall, 2·5 in Cardiff, and 3·0 in Stockton-on-Tees. The fatal cases of whooping-cough, which had been 123 and 86 in the two preceding weeks, were 85 in the week under notice; the death-rates from this disease ranged upwards to 1·1 in Cardiff, 1·2 in Wigan, and 2·3 in St. Helens. The mortality both from scarlet fever and from diphtheria slightly exceeded that recorded in other recent weeks; the former disease caused a death-rate of 1·5 in West Bromwich and the latter of 1·5 in Middlesbrough and 1·7 in Rotherham. "Fever" was not excessively fatal in any of the large towns last week. The number of scarlet fever patients under treatment in the Metropolitan Asylums Hospitals and in the London Fever Hospital at the end of last week was 3660, against numbers that had increased from 3658 to 3626 in the 13 preceding weeks; 466 new cases were admitted during the week, against 569, 557, and 419 in the three preceding weeks. One case of small-pox was admitted and remained under treatment at the end of the week, being the first case since the middle of May last. The deaths in London referred to pneumonia and other diseases of the respiratory organs, which had been 126, 136, and 137 in the three preceding weeks, further rose last week to 139, and were 17 in excess of the corrected average number in the corresponding week of the five years 1902–06. The causes of 33, or 0·9 per cent., of the deaths in the 76 towns last week were not certified, either by a registered medical practitioner or by a coroner. All the causes of death were duly certified in Leeds, Bristol, West Ham, Newcastle-on-Tyne, Hull, Nottingham, and 51 other of the 76 towns; the largest proportions of uncertified deaths were registered in Liverpool, Birmingham, Sheffield, Bradford, Sunderland and Preston.

HEALTH OF SCOTCH TOWNS.

The annual rate of mortality in eight of the principal Scotch towns, which had been 14·9, 13·6, and 12·8 per 1000 in the three preceding weeks, rose again to 13·8 during the week ending August 10th, and was 2·0 per 1000 in excess of the mean rate during the same period in the 76 large English towns. The rates in the eight Scotch towns ranged from 8·8 in Paisley and 10·6 in Leith, to 15·4 in Dundee and 16·1 in Greenock. The 479 deaths in these towns showed an increase of 34 over the number in the previous week, and included 75 which were referred to the principal epidemic diseases, against 63, 66, and 60 in the three preceding weeks. These 75 deaths were equal to an annual rate of 2·2 per 1000, which exceeded by 1·0 per 1000 the mean rate during the same period from the principal epidemic diseases in the 76 large English towns; they included 30 which resulted from whooping-cough, 22 from diarrhœa, 13 from "fever," six from measles, two from scarlet fever, and two from diphtheria, but not any from small-pox. The fatal cases of whooping-cough, which had been 30 and 12 in the two preceding weeks, rose again last week to 30, of which 15 occurred in Glasgow, six in Edinburgh, four in Dundee, and three in Leith. The deaths from diarrhœa, which had been ten and 21 in the two preceding weeks, further rose to 22 last week, and included ten in Glasgow, seven in Dundee, and two in Leith. The deaths referred to different forms of "fever," which had been 15 in each of the two previous weeks, declined to 13 last week, and included four cases of cerebro-spinal meningitis in Glasgow, two in Edinburgh, two in Leith, one in Greenock, and one in Perth. The six fatal cases of measles corresponded with the number in the preceding week, and included four in Glasgow and two in Edinburgh. The deaths in the eight towns referred to diseases of the respiratory organs, including pneumonia, which had been 63 and 68 in the two previous weeks, declined again to 55 last week, and were 13 below the number in the corresponding period of last year. The causes of five, or 1·0 per cent., of the deaths registered in the eight towns last week were not certified; in the 76 English towns the proportion of uncertified deaths was 0·9 per cent.

HEALTH OF DUBLIN.

The annual rate of mortality in Dublin, which had been 21·5, 21·2, and 18·0 per 1000 in the three preceding weeks, further declined to 15·7 per 1000 in the week ending August 10th. During the first six weeks of the current quarter the death-rate in Dublin has averaged 19·3 per 1000, the rate in London during the same period being 11·9 per 1000, and in Edinburgh 12·2. The 118 deaths of Dublin residents registered during the week under notice were 17 fewer than the number in the preceding week, and included 13 which were referred to the principal epidemic diseases, against 12 and 15 in the two preceding weeks; of these, five resulted from measles, five from diarrhœa, and one each from diphtheria, from whooping-cough, and from "fever," but not any from small-pox, or from scarlet fever. These 13 deaths were equal to an annual rate of 1·7 per 1000, the death-rate last week from the principal epidemic diseases being 1·2 in London and 1·4 in Edinburgh. The deaths from measles, which had been three and six in the two preceding weeks, declined again last week to five; while the fatal cases of diarrhœa increased to five last week, having been four and three in the two preceding weeks. The 118 deaths from all causes in Dublin last week included 31 of children under one year of age and 27 of persons aged upwards of 60 years; the latter corresponded with the number in the preceding week, but the deaths of infants showed a marked increase. Three inquest cases and two deaths from violence were registered; and 42, or 35·6 per cent., of the deaths occurred in public institutions. The causes of eight, or 6·8 per cent., of the deaths in Dublin last week were not certified; the percentage of uncertified deaths in London did not exceed 0·2, while in Edinburgh the proportion was 2·2 per cent. The 104 deaths in Belfast included three which were attributed to cerebro-spinal fever.

THE SERVICES.

ROYAL NAVY MEDICAL SERVICE.

THE following appointments are notified:—Fleet Surgeons: E. A. Penfold to the *Hindustan*, on recommissioning; G. Hewlett to the *Prince George*, on recommissioning; E. B. Townsend to the *Terrible*. Staff Surgeon: M. Cameron to the *Hindustan*, on recommissioning. Surgeon: A. J. Hewitt to the *Prince George*, on recommissioning.

ROYAL ARMY MEDICAL CORPS.

Lieutenant J. R. Forrest has been appointed Sanitary Officer, 3rd (Lahore) Division, as a temporary measure. Lieutenant C. M. Drew has joined at Tidworth. Major C. E. P. Fowler, Captain H. O. B. Browne-Mason, Captain A. L. A. Webb, Captain F. M. Parry, Captain A. D. Jameson, Captain H. B. Fawcus, and Captain H. R. Bateman have joined the London District. Lieutenant-Colonel J. R. Dodd has been appointed to the medical charge of the Royal Infirmary at Dublin.

The undermentioned Lieutenants to be Captains (dated July 30th, 1907): Godfrey F. Rugg, Douglas S. B. Thomson, John Fairbairn, Leonard Bousfield, Robert G. Anderson, James H. Douglass, Robert R. Lewis, Alexander L. Otway, Charles H. Turner, Frank H. Noke, Eugene C. Whitehead, Walter F. H. Vaughan, Richard B. Hole, Travis C. Lucas, George E. Cathcart, William Wiley, Howard Harding, John A. Turnbull, Montagu F. Grant, David P. Johnstone, Edward H. M. Moore, Michael D. Ahern, Frederick J. Garland, Alban A. Meaden, Robert J. Cahill, Sidney C. Bowle, Harry B. Connell, George S. C. Hayes.

The undermentioned to be Lieutenants on probation (dated July 29th, 1907): Thomas McCann Phillips, Harold Stewart Dickson, George Forbes Dawson, Harry Vivian Byatt Byatt, Ronald Ernest Todd, Thomas Fletcher Lumb, Harold Gibson, Charles Paget O'Brien Butler, Gerard Petit, John Berehmans Hanafin, John Allister Renshaw, Richard Frederick O'Toole Dickinson, William Roche O'Farrell, Ralph De Veil King, Dalziel Buchanan McGrigor, Cecil Allen Taylor Conyngham, John Ross Lloyd, William Charles Carson, Richard George Stanhope Gregg, Harold Thomsett Treves, Francis Thomas Dowling, James Clarence Ledeatt Hingston, Forbes Jackson Stuart, Benjamin Alexander Odlum, William Arthur Spong, James Forgan Grant, Henry Percival Hart, Arthur Edward Booth Jones, and Alexander Hendry.

Lieutenants Ronald E. Todd and James C. L. Hingston are seconded under the provisions of Article 349, Royal Warrant for Pay and Promotion, 1906 (dated, July 29th, 1907).

VOLUNTEER CORPS.

Royal Garrison Artillery (Volunteers): 1st Cinque Ports: Surgeon-Lieutenant E. A. White, resigns his commission (dated, July 4th, 1907).

VITAL STATISTICS OF THE FRENCH NAVY.

The last vital statistics issued in respect of the French Navy are interesting. Average strength (officers and men) at home, 36,669; abroad, 9393; total, 46,062. Sick-rate, at home, 1012; abroad, 1396 per 1000 of strength. These rates, which include slight cases (*malades à la chambre*), are much lower than the corresponding rates in the land army. In both forces the chief causes of inefficiency are acute bronchitis, sore throat, influenza, gastric derangements, and rheumatism, but lesions due to accident are proportionally more frequent among the sailors. Death-rate, at home, 6·44; abroad, 5·11 per 1000 of strength. At first sight it would seem as if the mortality on foreign service were lower than on home service, but in reality this is not so. Invalids from abroad are sent to depôts in France, thus greatly augmenting the deaths reported from the latter. In 1903 the depôt death-rate was over 14 per 1000. Since 1899, when statistics were first published by the French naval authorities, the annual death-rate has been as follows: 1899, 6·61; 1900, 11·04; 1901, 6·80; 1902, 7·30; and 1903, 6·17. The year under consideration consequently compares favourably with the four that preceded it. The invaliding-rate for 1903 was 28 per 1000 of strength, but out of a total of 1307 men who were placed in retirement on account of ill-health no fewer than 604 were rejected immediately on joining, chiefly on account of eye affections, hernia, and tuberculosis. The remainder of the invalids, who had all served at home or abroad for longer or shorter periods, suffered for the most part from tuberculosis. For the foregoing information we are indebted to an article by Dr. J. Alvernhe in the *Archives de Médecine et de Pharmacie Militaires* for June.

SPECIAL PAY FOR MEDICAL OFFICERS IN INDIA.

The Government of India has announced its intention of granting special pay to officers of the Royal Army Medical Corps and of the Indian Medical Service. The allowance will be payable to officers below the rank of Lieutenant-Colonel for special sanitary, surgical, or medical work done for the State which it is not in the power of an ordinary medical officer to perform with the same efficiency as the specialist. It will not be a personal allowance but will be granted only to incumbents of certain specified appointments. There will be 105 specialist appointments in India, each carrying pay at the rate of Rs.60 a month. Of these, 55 will be allotted to the Royal Army Medical Corps and 50 to the Indian Medical Service in military employment. The special subjects are as follows: (*a*) prevention of disease (including parasitology, bacteriology, and preventive inoculation), 40 appointments; (*b*) dermatology (including the prophylaxis, treatment of, and instructional measures in connexion with venereal diseases), 10 appointments; (*c*) advanced operative surgery, 20 appointments; (*d*) ophthalmology, 10 appointments; (*e*) electrical science (including skiagraphy), 10 appointments; (*f*) mental science, 2 appointments; (*g*) otology, laryngology, and rhinology, 3 appointments; and (*h*) midwifery and diseases of women and children, 10 appointments.

Correspondence.

"Audi alteram partem."

SOME REMARKS ON PLAGUE.

To the Editors of THE LANCET.

SIRS,—To those interested in plague work let me commend the Croonian Lectures delivered by Professor W. J. R Simpson and just concluded in THE LANCET of July 27th. Professor Simpson's remarks will be subject-matter for much thought to those in whose hands lies the hygienic administration of India. The whole problem of scientific work in India, so far as the medical aspect of it is concerned, is an excellent example of what Professor Ronald Ross calls "unscientific administration."

In a letter published in *Nature*, June 13th last, Professor Ross shows up the many obstacles to good work that meet one at every turn in India, and all those who have worked in that country will bear witness to his remarks. But although the handling of the medical profession leaves much to be desired, *vide* Professor Ross's letter, the problem, so far as plague is concerned, is one not lightly to be got over. It is very easy to say, do this or do that, and in this country, where the welfare of each individual is the concern of the multitude, we cannot understand why any scheme for the general good should meet with opposition. Are we not apt to forget that it has taken centuries to arrive at this happy condition?

Anyone who has the smallest knowledge of Indian life knows the innumerable obstacles that rise up to baffle your efforts in every direction. Eliminate Bombay, Calcutta, Madras, and at most three or four other large cities in India, and what do we find? Millions of people, uneducated, bound down by caste rules, living on superstition, ready to believe the word of anyone so long as it contains the slightest trace of the supernatural. People whose customs of to-day have come down to them since India was. People who see in every passing cloud the finger of some irate god. Go back to the cities that have been eliminated. You will find three-fourths of the native population still hugging the superstitions of their forefathers, still anxious to be left alone with their troubles. And what of the educated fourth? In the majority of these educated minds there still lurks the shadow of superstition, and the man with the university degree will, when his child yawns, crack his finger-joints so as to frighten away any evil spirit that may be hovering round ready to find a lodging in his child's inside. In the face of all this the task seems hopeless.

There is another element, and this of a more serious nature, that has to be contended against. Many of these educated persons use their higher intellectual powers not for the general good but for their own individual advancement. They do not scruple to make use of the superstition and ignorance that surround them on all sides. Here is one case of many that came under my notice. In 1900 the proprietor and editor of a certain paper in Sind came forward as usual for inoculation, he and all his family, as soon as plague made its appearance. That done, he commenced a tirade against inoculation in his paper; not satisfied with that he accused the local plague authorities of brutality in the exercise of their duties. He went further and accused a native doctor of some offence connected with plague work. Government prosecuted. He was found guilty, sentenced to a term of imprisonment and a fine. He appealed and went on appealing until in 1902, just before the Delhi Durbar, he was acquitted. The native doctor, who had received some Rs.200 as compensation for the wrong accusations, was called upon to refund this amount. That man used to do no end of harm by his articles. He and his kind are some of the drawbacks to advancement in many parts of India.

But notwithstanding all these and many other unmentioned obstacles there can be no doubt that the plague question in India leaves much to be desired. The administration during the first few years was faulty, and now or for the past few years the jump has been too far in the opposite direction. To begin with, the material in hand was not properly utilised. Railway inspection was everything. No doubt it prevented the spread of plague to a certain degree, but it was impossible to make supervision complete; moreover, the men might have been more usefully employed. What I suggested in 1900 I am still inclined to hold to. That is, that if a certain number of medical gentlemen had been engaged, then placed either singly or in pairs throughout India in centres where plague was bad and just commencing, given an entirely free hand and allowed to make their investigations unmolested something of importance would more than likely have been discovered. It is only by living in a district where plague makes its appearance, runs its course for a certain number of months, then completely dies down, that one by constant watching, by daily investigation of each and every element that is likely to come into play, may discover the means by which plague is carried over the quiescent period. Such work cannot be done in a large city, there would be too many avenues to watch, but it can be done in an area including a certain number of small villages. Then at the end of six months, 12 months, or longer if necessary, let all the investigators be brought together and a conference held.

In July, 1906, the *Indian Medical Gazette* published a Special Plague Number. The subject was "How does Plague Spread?" It is generally admitted that the following may be

accepted as causal factors in the spread of the disease: contagion from person to person, contaminated food-supply, wearing apparel, &c., rats, fleas, and other animals. That rats have always played a very important part in the spread of plague is no new theory. A Puranâ written over 800 years ago in India runs as follows: "When you notice an unusual mortality amongst rats it is a sure sign that you are shortly to be visited by a fatal disease, and your only safety lies in flight." Early in the present epidemic the natives learned to associate the connexion between rats and plague. In 1905 I carried out a series of experiments to prove the connexion between rats and fleas in the spread of plague. I had done one or two experiments in 1901 but had not the time or opportunity then to go fully into the matter. In 1900 and 1901 from observations and experiments it seemed very clear that rats and fleas were two leading factors in the local spread of the disease. Food-supply, especially grain, has always in my mind been accountable for the spread of the disease, but chiefly amongst rats. Experiments carried out in 1902 and afterwards in 1904 and 1905 corroborated the previous conclusions. On the above supposition I have always divided plague into the classes bubonic, pneumonic, and alimentary. In an article published in THE LANCET of June 10th, 1905, p. 1562, I gave this latter division and my reasons for thinking so. In the first years of the present epidemic all foodstuff that was found in infected go-downs was either destroyed or exposed to the sun for several days. This was only a measure, however, carried out in one or two places and in my opinion should be much more enforced.

There can be nothing but praise for the strenuous efforts made by the various Governments in India to stamp out the disease and prevent its spread, but it has always seemed that too much weight is given to certain lines of action even after the results were there to prove their faultiness. Then, again, too much importance is given to various methods of inspection and segregation employed in certain places where plague has not made headway. To say, for instance, that railway inspection and notification have kept Madras city free from plague is asking one to accept too much for these precautions. It is one of the puzzles connected with this disease that have still to be answered. Black Town, in Madras city, in about as favourable a locality for the disease to thrive in as one could seek for. Plague cases have occurred there, but the disease has never made headway. Why? Take Calcutta. Plague should have swept the city but it has not. There are still several questions which require answering before we can get to the bottom of the periodical recrudescence and disappearance of this disease. And because Madras and Calcutta are free to-day it by no means follows that they will remain so for ever. Several districts lived under that false impression for one or two years, only to feel the scourge more acutely when it did come. There is one important district in Mysore State in which plague, at least during the past two years, has been a more or less minus quantity. That is on the Kolar Gold Fields. Plague used to visit the fields regularly almost every year. The dislocation to the work can be well imagined. The part of the fields where the coolies live is about nine miles long by about one wide. The coolies live in tattie huts erected in long parallel rows. Each hut stands by itself. If a case of plague occurred in one of these huts it was pulled down and burned. The inhabitants were segregated and the adjoining huts were also evacuated. These precautions no doubt curtailed the disease to a certain extent but the disease ran its course. In 1904 it was decided to commence at the north end of each camp and go right through, digging up the floor of each hut and destroying all the rats. When this was done the performance began all over again. This was carried on through 1905 and 1906; in addition in the latter year "Liverpool rat virus" was laid down all over the fields, commencing at one end and going clean through. It so happened that in the extreme north end was a closed-down mine and the virus was not laid down in that quarter. Within a fortnight of the experiment word was brought to the "Lab." that many rats were making their way to the north end of the field and one or two were found dying in outhouses. From these dying rats I was able to isolate a bacillus identical in every way with the original Liverpool rat virus bacillus. The outbreaks of plague on the fields have become less and less. Isolated cases have occurred, but the disease has never spread to any extent since these two plans have been carried out. Yet in the neighbouring villages, which abut on the fields, plague is constantly occurring. In towns and villages it would be impossible to carry out the former of these two methods to any extent, but the use of the "Liverpool rat virus" might be extensively used in conjunction with other exterminators. The results on the gold fields appear so satisfactory that they are worthy a more extended trial.

Haffkine's prophylactic should be pushed more than it is. Unfortunately, it has not found favour with the whole of the medical profession in India and in Madras Presidency it has not been used very much for that reason. It is also supposed only to confer immunity for at most six months or so. This belief has told against its use in many places. There is, further, a widespread impression amongst the natives that it produces impotence. Now, if we have a considerable portion of the public in Great Britain objecting to vaccination and allowed by Government to carry out their objection to the point of refusal, thereby building up an ever-increasing population of unprotected individuals until one day we have a general and widespread outbreak of small-pox, how can we afford to laugh at the uneducated Indian because he will not come forward for inoculation? The problem is not an easy one, but it is one that must be tackled. This yearly death roll is becoming a very serious matter. Plague has long ago ruined the trade of Bangalore; Poona has suffered and is still suffering; the Punjab is in a pitiful condition; at any moment the disease may break its present bounds and flow over the Straits Settlements and Ceylon and the consequences are not difficult to conceive.

The treatment of plague has not made much advance during the past years. Various sera have been tried with disappointing effects. Carbolic acid injections have done good in many cases and at one time it was thought that it would prove very efficacious. Adrenalin has been boomed, but cardiac stimulants are still the chief mainstay. There is one drug which so far I have not seen mentioned and which I used in 1906 on four or five cases with remarkable results. This is collargol, an allotropic form of silver. It is soluble in water about 1 in 25. I used it in intravenous injections, one cubic centimetre of a 1 per cent. solution. The first case was hardly a fair test, but the result was astonishing.

A man was admitted into the plague hospital about 8 A.M. He had double cervical buboes. His temperature was 104·6° F. and his pulse was 130. He was highly delirious and death seemed imminent. So hopeless was his condition that at first I refused to try the drug. However, I gave one cubic centimetre of a 1 per cent. solution intravenously; this was at 9.30 A.M. I called down again at 5 P.M. The temperature was 100° and the pulse was 105. The wild delirium was gone but he was picking at his blanket. It was evident that the bronchial glands were infected, also the apices of his lungs. I repeated the injection. Next morning his temperature was normal, his pulse was 105, and he was able to answer questions. I did not repeat the injection. His breathing was very laboured and the upper portion of his lungs was quite dull. He died on the following day. The necropsy showed infiltration of all the cervical glands, bronchial glands, and consolidation of the upper and middle lobe of the right lung and upper lobe of the left. I felt satisfied that the drug had had a beneficial effect on this man's case. Had he not received it I am sure that he would have died the same day.

The next two cases were men with inguinal buboes. They had been ill 24 hours previous to admission. They had temperatures over 101°; the buboes were exquisitely painful. I gave both intravenous injections of one cubic centimetre of a 1 per cent. solution in the morning; by evening their temperature was normal. The injection was repeated next morning. The temperature never rose again and the buboes disappeared in three days, both men being up and about on the eighth day. The other two cases were in children. I was unable to do intravenous injection and after two days' illness both died. The drug, I think, merits further trial. I was not in charge of the plague camp and it was only by the courtesy of the native doctor that I was allowed to carry out this treatment.

I am, Sirs, yours faithfully,

ALEX. M. ELLIOT, M.B. Edin.

Cliveden-place, S.W., August 12th, 1907.

THE GEOGRAPHICAL DISTRIBUTION OF HERNIA.

To the Editors of THE LANCET.

SIRS,—Though I was well aware that abdominal hernia is a complaint common to all nationalities I was not sure whether the varieties we are familiar with in this country

were also met with amongst other and less civilised communities. During the early part of this year I wrote to medical men practising in various parts of the world, asking them if they would kindly inform me as to the frequency with which hernia was met with amongst the native races in their respective districts. The information very kindly furnished me is of considerable interest, and it would appear that hernia has not only a wide geographical distribution but that the more common varieties as seen in this country prevail all over the world. It is somewhat remarkable that femoral hernia is so seldom met with in certain districts. The influence of employment as regards the incidence of hernia is also clearly brought out. The following are some of the letters I have received:—

Dr. G. DUNCAN WHYTE *of Swatow, China.*

Hernia is of frequent occurrence in this neighbourhood, mostly inguinal, and usually on the right side. For example, a hospital here bought five and a half dozen trusses for right inguinal hernia, and only one a half dozen for the left side. Out of, roughly speaking, 15,000 patients I have seen in China I have only once diagnosed a femoral hernia. I have not heard of anyone here or in Swatow who stocked trusses for femoral hernia. Last year I saw a curious case in which there was a very small hernia in the linea alba, midway between the xiphi-sternum and the umbilicus. There had been neither injury nor disease locally and the same condition had existed in the patient's father and (paternal) grandfather. About eighteen dozen trusses are sold in Swatow in the course of a year, a town with a population of 20,000 by night and 30,000 by day. The extra 10,000 come in from all the villages around to earn their living by coolie work, &c. Tight prepuces are common and the straining to express urine may be expected to accentuate any congenital defect that exists. The Chinaman would not dream of having his foreskin cut any more than most of them will consent to have extra digits removed; they wish to preserve their whole body complete. They all "hunker" to defæcate, an attitude which by supporting the walls of the inguinal canal, or by securing that a man shall only defæcate when his hernia is reduced, may diminish the chances of strangulation, but to my mind this attitude does not have that influence upon the incidence of hernia which I was led in my student days to anticipate. On the other hand, its causal relation to hæmorrhoids and more markedly to prolapse of the rectum seems to me beyond question.

Dr. A. SIMS *of Matadi, Congo State.*

Hernia is most common here. I should think 3 to 5 per cent. of the adult male population is affected with it. Formerly, when there was no railway and all goods were carried to the interior on men's heads, hernia was more common than now and strangulated hernia was very common. Native products are now only carried, at least in these parts, for short distances, and in consequence hernia is diminishing. Child labour for carrying burdens is growing less and as a result I see fewer children with hernia.

Mr. MALCOLM A. SMITH *of Bangkok.*

I should consider hernia to occur as frequently here as it does in England. I have, however, in five years' practice never seen or heard of a case of strangulation of the bowel.

Mr. B. GRANVILL CORNEY *of Fiji.*

From personal observation I can say that inguinal hernia is of common occurrence amongst the members of the Fijian race. Umbilical hernia is also very frequently met with in Fijian children, though it usually becomes less apparent as they grow up. I have seen one case of obturator hernia in a boy of 12 or 14 years of age.

Mr. A. J. GLANVILLE BARKER *of Sarawak, Borneo.*

Hernia is fairly common amongst all the races we see here—viz. Malays, Dyaks, Chinese, and Indians.

Dr. EDWARD H. ARMITAGE *of Honolulu.*

The following statistics have been furnished to me by the surgeon to the Queen's Hospital in Honolulu. From June 1st, 1904, to May 13th, 1907. Total number of cases operated upon, 54. Nationality: Hawaiian, 7; part Hawaiian, 2; other nationalities, 45. Varieties—inguinal: single, 40; double, 8—total, 48; femoral: single, 5; double, 1—total, 6. Sex—Male: inguinal, 46; femoral, 4—total, 50. Female: inguinal, 2; femoral, 2—total, 4. Strangulated, 3; non-strangulated, 51.

I am, Sirs, yours faithfully,

R. W. MURRAY, F.R.C.S. Eng.,
Surgeon, David Lewis Northern Hospital, Liverpool.

July 17th, 1907.

THE DISCUSSION ON ACUTE NEPHRITIS IN CHILDREN AT THE BRITISH MEDICAL ASSOCIATION.

To the Editors of THE LANCET.

SIRS,—May I point out that your report of my remarks on acute nephritis in children on p. 390 of THE LANCET of August 10th is misleading. The gist of my statement was that ocular manifestations were conspicuous for their absence in *acute* nephritis. Amaurosis without ophthalmoscopic signs occurs as in adults. The typical picture of albuminuric retinitis—neuro-retinitis with a star-shaped figure at the macula—which occurs rarely in cases of intracranial pressure without renal disease in adults, is relatively common in these cases in children.

I am, Sirs, yours faithfully,

August 9th, 1907. J. HERBERT PARSONS.

*** We have much pleasure in inserting Mr. Parsons's correction. Our reports have to be somewhat condensed and hence there is always a liability to ambiguity.—ED. L.

EXPERIMENTS ON PROLONGED PROTEIN FEEDING.

To the Editors of THE LANCET.

SIRS,—In a criticism of my paper on protein feeding Dr. Chalmers Watson expressed the opinion that more than one of the thyroid glands therein illustrated are pathological and not as I stated normal, but to my request for enlightenment as to what points he relied on in forming this opinion he has replied that he prefers to postpone giving any reasons. Seeing that the criticism is one which, if substantiated, would materially affect one of the conclusions of my paper I hope Dr. Watson will appreciate the desirability of supporting his statement by some facts, however brief.

I am, Sirs, yours faithfully,

Harley-street, W., August 10th, 1907. DAVID FORSYTH.

INTERNATIONAL CONGRESS ON SCHOOL HYGIENE.

To the Editors of THE LANCET.

SIRS,—I attended all the general meetings of this important Congress and I spent many hours in Sections II., VII., and X. during the past week, but with the exception of a passing reference by Mr. L. M. Bowen-Jones of Carmarthen on Friday the Sunday schools were not mentioned (to my knowledge) either in any set paper or by casual debaters. The entire omission of Sunday schools from the programme of a congress on school hygiene is a curious fact and difficult to account for. As far as my own experience goes Sunday schools are frequently the foci and hotbed of infectious diseases and any closure of day schools will be useless unless accompanied by that of the Sunday schools in the same district. It is true that the scholars are only in the Sunday schools for from one hour to one and a half hours once or twice in the day, but the buildings are often much overcrowded, badly lighted, insufficiently ventilated, and otherwise ill adapted for their purpose.

I consider that the powers of the local sanitary authority for dealing with Sunday schools are not so stringent and easy of application as they ought to be, for some types of Sunday school managers are not gifted with common sense and they can only be influenced and made to do right by the exercise of legal powers strictly applied.

I am, Sirs, yours faithfully,

SIDNEY C. LAWRENCE,
Medical Officer of Health and Delegate from Edmonton.

Edmonton, August 12th, 1907.

AN ASSOCIATION OF SHIP SURGEONS.

To the Editors of THE LANCET.

SIRS,—Would you allow me through the medium of your valuable columns to issue an appeal to all ship surgeons, both past and present, urging them to join the B.S.S.A. (British Ship Surgeons' Association), which is being formed with a view to improving the "status" of medical officers to shipping companies and also to obtain more "clinical" and "experimental" evidence on the treatment of "sea-sickness" and other "affections" peculiar to sea-going persons. It is proposed ultimately to issue a *Ship Surgeons' Gazette* monthly, that is, if the membership permits. We have every reason to believe that it will have the substantial support of all shipping companies, seeing that it will indirectly further their interests. Further particulars can be obtained from, and application for membership to be sent to,

Yours faithfully,

G. METCALFE-SHARPE,
Surgical Officer.

Angram Hospital, Middlesmoor, Leeds, August 8th, 1907.

BIRMINGHAM.

(FROM OUR OWN CORRESPONDENT.)

Open Spaces.

THE controversy regarding the acceptance or non-acceptance of the last offer made to the city by the Open Spaces Society has been somewhat prolonged and it has caused an unfortunate amount of friction. It will be remembered that the Open Spaces Society offered to the city four spaces, the total cost of which would be £12,000, towards which the society had collected £8000. The baths and parks committee was requested to report upon the matter and, as I pointed out recently, its report was decidedly adverse. The committee quite rightly considered not only the purchase cost but also the amount necessary for putting the plots into proper condition and the annual cost of upkeep. There can be no doubt, however, that as regards the two latter items it went beyond the necessities of the case, and it seemed to have missed the main point of the matter which was the necessity for securing the spaces whilst they were available under favourable conditions, even if they could not at present be elaborated and improved. Fortunately the council grasped the essential fact and whilst recognising the good intentions of the baths and parks committee it decided that as no such favourable moment for the acquisition of the spaces was likely to recur the offer of the Open Spaces Society should be accepted. One of the main difficulties which threatened to bar the way was the unwillingness of Smethwick and Handsworth to share the expenses of upkeep, in spite of the fact that the famous Black Patch, the largest of the areas offered, will be of service to their inhabitants as well as to those of Birmingham. The council, however, took the broad and right view that the unwillingness of others to bear their proper burden must not be allowed to stand in the way of anything which would be of advantage to the healthy development of the city. Wisely, however, in accepting the offer of the Open Spaces Society the council took the precaution to provide that Handsworth and Smethwick should pay their fair share of the expenses which must eventually be incurred in connexion with Hockley Brook which passes through the Black Patch. The Open Spaces Society is to be congratulated on the good work it has done in this matter. It has worked hard for the general good and even whilst the controversy over its last offer was in progress it succeeded in collecting an additional £1000 towards the purchase of the plots it offered, thus reducing the contribution of the city to £3000. The plots which it secured are not all that could be wished for, as some of the objectors to the scheme pointed out, but they will henceforth remain as open spaces and as "lung" areas in crowded districts.

Warley Model Village Scheme.

Mr. A. M. Chance has been attempting to found a model village on coöperative principles on a plot of land at Warley for which he holds an option till the end of September next. To make the scheme a success it is necessary that there should be 500 subscribers willing to take up plots. At present only about one-tenth of the requisite number have seen their way to join the scheme and unless much more progress can be made in the next few days it is probable that the plan will have to be given up, in which case what might have proved a very interesting and instructive experiment will not be made. Apparently one of the main difficulties would-be applicants find is that of providing the full amount of the cost in the necessary time. In connexion with this Mr. Chance stated that an insurance company was willing to take part on the following terms. Presuming the applicant to be 35 years old and the house and land which he was to acquire of a total value of £300, the company would lend £240, provided the applicant insured under a 20 or 25 years' endowment policy for £240, in which case the interest on the £240 and the premium on the endowment policy would amount to an annual total of £18 17*s.* 3*d.* If these are the best terms that can be obtained the probability of the necessary number of subscribers coming forward seems small.

Sleeping Accommodation for Railway Navvies.

It appears that in association with the extension of the Midland Railway from Water Orton to Kingsbury no proper sleeping accommodation has been provided for the 300 navvies employed on the work and as a result many of them have had to sleep in the open or in damp and unsatisfactory shelters. Such a condition of affairs obviously contains the germs of a definite danger to the public health and is a state of affairs over which authorities should have a control that appears to be entirely lacking. When local accommodation is insufficient the contractor should be under obligation to erect temporary buildings. Such buildings being temporary structures it would only be necessary that they should easily be kept clean and dry, but such simple precautions might well serve to avert serious danger to surrounding populations.

The Necessity for a Sufficiency of Attendants at Public Baths.

Quite recently a boy died suddenly in the Victoria-road baths. It was proved that death was due to syncope and that no assistance would have been of any use in this special case, but the Aston Baths Committee has wisely taken the warning and has arranged for an additional assistant, so that some person can always be present when the swimming bath is in use. This is a precaution which should be taken at all public swimming baths, for the danger of accident is always greatest when one person alone is using the bath, as he may at any moment be seized with cramp or may injure himself in diving, and in either case be quite unable to call for assistance.

Health of the City.

Though in a generally satisfactory condition, the death-rate for the second quarter of the year being 15·8 as contrasted with 16 in the corresponding period of 1906, and the death-rate for the week ending July 27th being only 11·9 per 1000, still the city is suffering from an excessive amount of measles and scarlet fever. The scarlet fever is of a mild type but measles has been more than usually fatal and the zymotic death-rate of 2·09 per 1000 for the second quarter is relatively too high. Everything is being done to prevent the disease spreading, but the preventive measures hitherto developed are not proving adequate.

August 12th.

MANCHESTER.

(FROM OUR OWN CORRESPONDENT.)

Bolton's Water Supply.

At the meeting of the Bolton town council on August 7th Dr. J. Thornley, medical officer of health of the Halliwell district of the Bolton Union, stated that the acidity of the water at present was such that it had become a great danger. Several cases of lead poisoning had already occurred. Some time ago the Local Government Board after an examination of the water said that certain measures must be taken to do away with dangerous elements. Some steps were taken but they were inefficient. Dr. Thornley considered that it was a mistake to have the water analysed by an outsider when the medical officer "was the party responsible to the Local Government Board." He advised that men should be employed to look after the pond weed at the reservoirs. An alderman and another member of the council deprecated public discussion and considered "that if Dr. Thornley had been a man of discretion he would not have opened his lips on the matter." One of them acknowledged that there had been two cases of lead poisoning but said "they did not arise from any arrangement for which they were responsible." It is certainly unwise to attempt to ignore this dangerous acidity of a public water-supply. There have been so many instances of serious outbreaks of lead poisoning from moorland gathered water that an attempt to hush up the matter seems almost criminal. Even if the true state of the case is fully made known a little wholesome alarm will only make people rather more careful to see that plenty of water is run off from the pipes before any is used for cooking or drinking. If they are left in ignorance of the risk run when this acidulated water is used after standing for some time in lead pipes more mischief will follow than any brought on by the fear of lead poisoning.

Platt Hall Estate.

In a southern suburb of Manchester there is a prospect of acquiring an estate of 77 acres or thereabouts, fairly well timbered and with a house. At a town's meeting held the other week a resolution was passed affirming that it was desirable that the city council should acquire it for public use as a park if it could be obtained at a reasonable price. The matter was discussed at the council meeting held on

August 7th and it was resolved that the Lord Mayor and the Deputy Mayor should be requested to ascertain the terms and conditions on which the corporation could acquire the estate and to negotiate for its purchase if the council and Local Government Board approved. Manchester, like other large towns, grows larger and larger, and takes into itself one green oasis after another, so that the uninterrupted succession of bricks and mortar, with chimneys, each one adding its contribution to the overhanging cloud of smoke, is ever extending. It would be a misfortune if this opportunity of obtaining so extensive and valuable an open space, a true "lung," for the city were lost. It would be of untold value in the future on the score of health. Of course, the question of cost is important, but long-suffering ratepayers do not always look on both sides of a question. They forget the advantages that would accrue to the city in the diminution of sickness, and so of expense, that would be sure to result if the Platt Fields were kept as an open space instead of being covered with dwellings.

Scarlet Fever at Dukinfield.

Rather a serious outbreak of scarlet fever has occurred at Dukinfield. At least 30 cases were reported a week ago. With the view of checking any further spread of the disease the local elementary schools are to be cleansed and disinfected. A similar outbreak took place some months ago and on that occasion Mr. J. R. S. Park, the medical officer, said there was no evidence, in his opinion, that the infection was conveyed by the milk- or water-supply.

Underfed and Badly Clothed.

Dr. Meredith Young, the medical officer of health, has been making investigations as to the feeding of the children attending the Stockport schools. He reports that 338 children in the town's schools are underfed and urges "the authorities to provide against this state of things." But he adds that "the question of clothing, and particularly of footwear, is of more importance to the health of such children than feeding," and he goes on to say that "if there be any funds that can be diverted in this direction I feel sure it would improve the health and physique of the children far more than any feeding experiments." The consideration of the remedy for this state of things, important as it is in its bearing on the future soundness and well-being of the race, would touch too closely on socio-political questions for these columns, but one thing stands out prominently, which is that the natural dependence of the children on the parents and the responsibility of the parents for the care and up-bringing of the children seem to be more and more lost sight of. The effect on the latter is, of course, to lessen the feeling of parents that they have duties towards their children and to loosen family ties. No doubt in a very large proportion of cases the vice of drunkenness or some other form of self-indulgence cripples the family exchequer and lowers the family morale. We seem to be approaching the age, if not of incubators, of artificial mothers for the nation.

£10,000 Maximum.

The University of Manchester does not appreciate the £10,000 maximum fixed by the Treasury in the place of the grant of £12,000, which had been received so long that it had come to be looked upon as income to be depended upon. It is said that no slur on the University is intended, but by the public it will be understood as a snub and will inevitably tend to lower the prestige and the prosperity of an institution which confessedly has adopted and maintained a high standard of efficiency and does not desire to be penalised by the crippling of its resources.

Lancashire Asylums Full.

At Clitheroe it was reported at the meeting of the board of guardians the other week that a certified lunatic inmate was still in the workhouse as no place could be found for him in an asylum. The five Lancashire asylums had been applied to but they were all full. The man was ill and scarcely fit to be removed, but if moved it would have to be to a Yorkshire asylum, and he would have to be certified by a Yorkshire authority. This is an unfortunate position for a self-respecting county.

August 13th.

CENTRAL MIDWIVES BOARD.—At the examination of candidates held by this board on August 1st there were 243 candidates examined, of whom 200 passed, being a percentage of failures of 17·7.

SCOTLAND.

(FROM OUR OWN CORRESPONDENTS.)

Development of School Children in Glasgow.

Dr. W. Leslie Mackenzie and Captain A. Foster have been engaged investigating for the Scotch education department the statistics amassed by the Glasgow school board as to the physical condition of the children attending school. For purposes of investigation the 73 schools were divided into four social groups. Group A included 26 schools in the poorest districts; Group B 27 schools in the poor districts; Group C, 11 schools in districts of a better class; and Group D, nine schools in districts of a still higher class, and including four out of the five higher grade schools in the city. Under all the groups about 73,000 children have been examined. In Group A 19 per cent. of the children resided in one-roomed houses and proportionately the grouping followed is confirmed by the distribution of one-, two-, and three-roomed houses. As to the general results of the inquiry, it is found that at each age from five to 18 the average weight of the children is uniformly below the standard of the anthropometrical committee of the British Association. As regards height, up to the age of 14 years the children, both boys and girls, are distinctly below the standard, while from the age of 15 years there is considerable variation, apparently owing to the small number examined above that age. There is, however, one exception: the children aged five years in Group D are in weight practically identical with the standard and in height are a shade over it. The boys in Group A fall very much below the standard. At the age of 10 years their average weight is 10·8 pounds below the standard and the average height 2·8 inches below the standard, and at 13 years the average is 11·1 and 3·1 below the standard respectively. With regard to the girls the facts are practically parallel. The graduation in height and weight from the poorest group to the best group is very striking. As surely as a child comes from Group A he or she is likely to be smaller and lighter than the children from Group B, and so on. The average weight of the one-roomed boy is 52·6 pounds, of the two-roomed 56·11 pounds, of the three-roomed 60·6 pounds, of the four-roomed and over 64·3 pounds. The respective heights are 46·6 inches, 48·1 inches, 50 inches, and 51·3 inches. Only one conclusion is possible—namely, that the poorest child suffers most in nutrition and growth. It cannot be a mere coincidence that boys from one-roomed houses should be 11·7 pounds lighter on an average than boys from four-roomed houses and 4·7 inches smaller. In the case of girls, also, it is shown that those from one-roomed houses are on the average 14 pounds lighter and 5·3 inches shorter than those from four-roomed houses.

Supposed Case of Spotted Fever in Aberdeen.

Dr. Matthew Hay, medical officer of health of the city of Aberdeen, in his report to the town council for June says: "Towards the end of the month a case of suspicious head illness was reported from Torry and was at once removed to the city hospital and the usual disinfection and other precautions were taken. The early progress of the case in the hospital did not definitely reveal the presence of cerebro-spinal fever, but within the past few days the spinal fluid has begun to show the presence of the germ characteristic of this disease. There has been no similar illness either before or afterwards in the family from which the case was removed and so far the source of the illness has not been traced. The patient, who is a boy of 15 years, had not been out of Aberdeen for some months before he took ill."

Opening of the Fyvie Cottage Hospital.

THIS hospital, which has been closed for several months on account of repairs and improvements, was opened last week in the presence of a distinguished company which included Lady Leith of Fyvie, Colonel and Miss Lorna Burn, Mrs. Albert Leith, Miss Bennett and Miss Giffen, Fyvie Castle. The opening ceremony was performed by Lady Leith who was introduced by the Rev. Mr. Wauchope Stewart. Lady Leith referred to the generosity of Colonel and Mrs. Gordon in giving the hospital to Fyvie some 27 years ago and expressed the belief that with all the new improvements in bedrooms, operating rooms, bathrooms, together with substantial teak-wood floors, the place would be more useful and comfortable than ever. Dr. C. C. Greig (Bridgend), in proposing a vote of thanks to Lady Leith for her kindness in

opening the hospital, mentioned that the cost of the large number of repairs and improvements, amounting in all to £600, had been handsomely defrayed by Lord and Lady Leith. After the opening all those present were invited inside to see over the building.

The Epidemic of Enteric Fever at Peterhead.

During the past week 25 cases of enteric fever have been notified to the medical officer of health at Peterhead, making a total of 313 cases since the commencement of the outbreak. Of these, 110 have been treated in the hospital and the remainder at home. 50 cases have been discharged from the hospital as well and one has died during the week. About 140 cases have fully recovered. During the month of June three cases of enteric fever were reported in Aberdeen, one of which proved fatal. The source of infection of the fatal case was apparently Peterhead. In each of the three cases the infection was traceable to a visit to Peterhead.

Death of James Henderson Mackay, M.A., M.B., Ch.B. Aberd.

The death is reported in Manchester of Dr. James Henderson Mackay. Dr. Mackay was a native of Aberdeen and was educated at the Grammar School and the University of Aberdeen. He graduated in arts in 1896 and in medicine in 1899. For a time he was on the staff of the Royal Lunatic Asylum, while for the past two and a half years he has been in practice in Manchester. Dr. Mackay's end came suddenly. After a hard day's work he retired to rest in the best of health and spirits. In the early morning he was found unconscious and soon passed peacefully away, heart failure being the cause of death.

August 12th.

IRELAND.

(FROM OUR OWN CORRESPONDENTS.)

Health of Belfast.

AT the usual monthly meeting of the Belfast corporation, held on August 1st, it was reported that between June 16th and July 20th 181 cases of infectious disease had been notified—viz., 24 cases of typhoid fever, 44 of scarlet fever, 22 of simple continued fever, three of puerperal fever, 14 of diphtheria, 1 of croup, 25 of erysipelas, and 48 of cerebro-spinal meningitis. The death-rate during the five weeks ended July 20th was 18·3. There is a decrease in typhoid fever and cerebro-spinal meningitis. During the week ended July 27th two cases of cerebro-spinal fever were notified, as compared with seven in the previous week. In the same period there were 12 deaths from the disease. Since the previous meeting of the committee, July 25th, five cases of cerebro-spinal fever were notified. There are still 20 cases of cerebro-spinal fever in Purdysburn Fever Hospital.

Rainfall in Ulster in July.

At Seaforde, Co. Down, during July rain fell on 13 days to the amount of 2·23 inches and the total for the past seven months is 22·85 inches, which is more than in the same time in 1906 (17·93 inches).

The Treatment of Consumption in Belfast.

The Local Government Board has approved of the arrangement made between the committee of the Forster Green Hospital and the corporation of Belfast, under which 25 beds are to be placed at the disposal of the corporation for consumptive patients at a charge of 35*s.* per bed, for a period of ten years. In its letter the Board says it trusts that it may lead to a larger effort on the part of the corporation for dealing with the prevalence of pulmonary consumption in Belfast, and adds, "While the Board would have been glad if the corporation had seen their way to propose a more extensive scheme for the treatment of consumptive patients, in view of the extensive prevalence of pulmonary tuberculosis in Belfast, they consider that the delay and other difficulties which might attend the negotiations for such a scheme would not justify them in withholding their approval of the present proposal."

North of Ireland Veterinary Medical Association.

At a meeting of the above association, very largely attended, held in the City Hall, Belfast, on July 26th, the President (Mr. J. J. Ross, M.R.C.V.S., of Belfast) being in the chair, Professor A. E. Mettam, B.Sc., M.R.C.V.S., President of the Royal Veterinary College of Ireland, read a paper on the Veterinary Surgeon as an Officer of Public Health. Having referred to the scientific education now needed by veterinary surgeons he pointed out that his study of disease extended far beyond the cause and the course; indeed, it became a study of economics, either as affecting the owner, the municipality, or the State. With reference to his duties as an official assisting those dealing with the public health, the veterinary surgeon should be the chief inspector of meat, and should be responsible for the inspection of all cowsheds and all animals producing milk for human consumption. He should be the official to whom all practising veterinary surgeons should notify infectious diseases in their own area. He should be consulted on every occasion when buildings were being erected for animals, such as stables, cowsheds, kennels, &c. As chief inspector of meat he should be responsible for all meat exposed for sale. Both the veterinarian and the medical officer have their own places. The medical official should be responsible for the health of the community, while the veterinarian should be his chief lieutenant, taking charge of that portion of the work of the public health committee relating to animals, no matter whether they were to produce flesh for food or milk or whether they were kept for work, profit, or pleasure. Sir John W. Byers, who had been specially asked to introduce the discussion on the subject of the paper, after congratulating the members of the veterinary profession in the north of Ireland on the step which they had recently taken in forming a new society, and having spoken in terms of the warmest praise in reference to Professor Mettam's very suggestive paper, said that veterinarians and medical men had now great responsibility in their hands as regards questions of public health, and in nothing was this more apparent than in the care that was now demanded as to the purity of our food supplies, especially meat and dairy produce. He said he was convinced that to be fair to farmers, traders, and consumers things would never be right until inspection of these products was imperial, universal, and of the same type or method, done by thoroughly trained veterinary surgeons appointed by the State and responsible to the State; and municipalities should not admit into their markets meat or dairy produce which had not passed a State inspection. In America the laws of such inspection were federal and the whole arrangement was imperial in Germany. He spoke of the universal attention that was now being called in all countries to the importance of a State control of the milk-supply and quoted the very important conclusions in the second interim report of the Royal Commission appointed to inquire into the relations of human and animal tuberculosis, which showed so clearly that tuberculosis in the cow was a fruitful source of disease and death in man. With reference to the practical remark made by these commissioners: "Our results clearly point to the necessity of measures more stringent than those at present enforced being taken to prevent the sale or the consumption of such (tubercular) milk," Sir John Byers advocated that these increased powers should be given to the State so that a uniform and universal system or line of action might be adopted both in town and country. In dealing with such serious problems of public health the medical and veterinary professions would have to work together so as to bring about a state of affairs in which not only would the cattle used in dairying be free from any acute or chronic disease, but in which the milkers and all others directly in charge of the dairies would also be clear of any form of infectious illness. This was the ideal they must all strive to obtain, and it was based upon the teaching of science and experience. Mr. J. McKinney, M.R.C.V.S., Dublin, moved, Mr. J. A. Thompson, F.R.C.V.S., seconded, and Dr. A. Dempsey supported, the following motion, which was unanimously carried:—

That a system of inspection of meat and dairy produce should be established by the State, to be applied with equal thoroughness and impartiality in all districts; that such inspection should be conducted only by trained veterinarians and appointed by the State; that municipalities should be empowered to exclude from their markets all meat or dairy produce, whether of native or foreign origin, which had not passed the State inspection.

On the motion of Sir Otto Jaffe (ex-mayor of Belfast and member of the public health committee), seconded by Mr. H. McConnell, M.R.C.V.S., and supported by Dr. S. Agnew (medical officer of health of Lurgan) and Mr. G. L. St. George (Lisburn), the following motion was carried:—

That in the opinion of this meeting at an early period the veterinary surgeon should report direct to the health committee and not to the medical officer of health.

Sir Otto Jaffe said that when in Belfast the veterinary surgeon was appointed a strange arrangement was come to, in so far as that official was partly responsible to the market committee and partly to the health committee. Mr. Matthew Hedley, F.R.C.V.S., of the Board of Agriculture, Dublin, moved a vote of thanks, which was seconded by Mr. W. Dawson, M.R.C.V.S., to Professor Mettam and Sir John Byers for their addresses, and these gentlemen having acknowledged the compliment the meeting terminated with a vote of thanks to the chairman. The Lord Mayor, the Earl of Shaftesbury, telegraphed regretting his inability to be present but wishing the conference every success.

Cerebro-spinal Meningitis.

At the last meeting of the public health committee (August 1st) it was reported that, practically speaking, cerebro-spinal fever had ceased to exist in Belfast. In future, no returns, as have been given each week, will again appear, unless the disease should break out again. It is to be hoped the public health authorities will give a full account of the great epidemic that has occurred in Belfast, so that some advance in our knowledge of the disease may be made. It is quite apparent that the malady has simply in time worn itself out, and apparently nothing has been discovered throwing any light either on its infectiousness or on its treatment.

The Belfast Health Commission.

The report of the Belfast Health Commission will probably not be ready before the end of September and it is not proposed to issue an interim report.

The Riots in Belfast.

The riots in Belfast took such a serious turn on August 12th that the Riot Act had to be read and the military were ordered to fire twice with the result that two men and a woman were killed and four others received gunshot wounds. A very large number of soldiers, police, and rioters received wounds from stones, broken bottles, and batons; and it is well-known that many of the rioters, for fear of being detected, do not come to hospital, but are treated at their own homes. The surgeons at the hospitals have had a new experience in treating gunshot injuries.

Belfast Hospital for Diseases of the Skin.

From the report which was presented at the annual meeting of the friends and supporters of this charity, held on July 31st, it appears that 652 patients were treated during the past year, of whom 31 were intern. There is a debt of £107. A new extern department and electric department, equipped with instruments and appliances of the most modern and approved type, have been added to the hospital. The Finsen light and x ray treatment, available now in this institution, will compare most favourably with that of any other similar hospital.

August 13th.

PARIS.

(FROM OUR OWN CORRESPONDENT.)

Senile Atrophy of the Brain.

AT the Hospitals Medical Society on July 10th M. Pierre Marie exhibited two brains from old people which showed typical physiological senile atrophy, characterised by diminution in the volume and weight and by enlargement of the sulci separating the convolutions. Depressions and hollows could be made out on these brains such as have been wrongly considered to be lesions, and on one of them there is a depression with a brownish colouration which resembles an old hæmorrhagic focus at the level of the third left frontal convolution. The brain has the exact appearance of one of the two on which Broca constructed his theory of aphasia.

High Frequency and High Tension Sparks in the Treatment of Cancer.

At the Academy of Medicine recently M. de Keating-Hart said that he has tried treating cancer by the passage through the tumour of powerful sparks emitted from an Oudin's resonator. The results he has obtained have been the suppression or the relief of pain after a transient sensation of burning and the frequent arrest of hæmorrhages. The later effects, varying with the length of the sittings and the more or less advanced state of the disease, are marked by a diminution in the growth of the tumour and an improvement in the general condition of the patient.

Prognosis in Idiocy.

At the annual meeting of the Society of Hypnotism (Hypnologie) and Psychology M. Voisin expounded his views on the prognosis in idiocy; he considers that complete idiocy, whether congenital or acquired, is capable of improvement. Contrary to the general opinion, acquired idiocy is the graver form and the idiot children with regular features and very few signs of degeneracy are refractory to training; some external cause has apparently come definitely to interrupt their psychical development. On the other hand, children born with even very marked stigmata of degeneration are capable of some intellectual development.

The Pathology of Moveable Kidney and of Visceral Ptoses.

At the Academy of Medicine on July 23rd M. Reynier opposed the opinion of M. Lucas-Championnière that moveable kidney is caused by enteroptosis. He considered that the two affections are often connected but that they can occur independently; they are symptoms of a common cause which results from a primary functional disturbance in the nervous system. The tone of the abdominal musculature, in fact, depends on the nervous system, and it is the loss of this tone that causes the various ptoses. In the light of this etiology it is not astonishing to observe in patients suffering from these conditions mental and sensory phenomena out of all proportion to their lesions. The treatment of all these symptoms consists in the treatment of the moveable kidney either by a well-done fixation or the wearing of a suitable corset for the particular case.

The Pathological Significance of Shrinking of the Gums.

At a meeting of the Pathological Society M. Ferrier has described a form of shrinking of the gums observed in persons of advanced years and generally in those with a tendency to calcification (of arteries), which is sufficiently distinct to be described as a clinical entity under the name of Fauchard's disease. This shrinking appears even in subjects whose teeth have been cleared of tartar. Bacterial growth occurs in the recesses between the gums and teeth, followed by destruction of the periosteum surrounded by the gum, secondary alveolar necrosis, and shedding of the tooth, after which the trouble clears up as the recesses at the bottom of which the bacteria grew are destroyed. M. Ferrier attributes this shrinking of the gums to the contraction in the calibre of an arteriole; in other words the commencement of a local atheroma. The loss of resistance in a badly-nourished region is an established fact. The correctness of this view is corroborated by the fact that "decalcifying remedies" have a marked preventive action on the process of the shrinking. The condition affords the practitioner an early sign of atheroma and a very useful indication for the employment of its proper treatment, and at the same time it may offer an explanation of other symptoms that the patient may present.

A Departmental Hospital for Villejuif.

The general council, on the motion of M. Roussel, has consented to the purchase of land for the erection of a departmental hospital for old people at Villejuif. The contract for building works is to be put up for tender. The furnishing will be given as much as possible to workmen's associations. The sum required will be 4,285,000 francs. The State will be asked for a subsidy.

Urinary Lithiasis and Tuberculosis.

At the Chirurgical Society M. Pousson recently made some observations on the coexistence of lithiasis and tuberculosis. He considers that in patients confined to bed for a long time for various tuberculous affections, especially those of bones, concretions of urates or oxalates are frequently formed in the kidney and more rarely in the bladder. This tendency to calculus formation is readily explained by the over-production of urates in these resting and over-fed patients. Secondary calculus concretions, nearly always phosphatic, are not rare in the kidneys, though they occur more often in the bladders of patients suffering from a bacterial infection in the stage of destructive suppuration. Besides these two classes of lithuric tuberculous subjects there is a third. This consists of patients who have undergone nephrectomy for tuberculous kidney disease and subsequently pass large quantities of sand in their urine, although they had passed none before the operation.

M. Pousson attributes this phenomenon to overfeeding and the tonic drugs, particularly those with a mineral base, which these patients are given.

August 12th.

BERLIN.

(FROM OUR OWN CORRESPONDENT.)

The Medical Academy at Düsseldorf.

THE recent opening of the medical academy at Düsseldorf was an event of some importance and was attended with considerable display. These medical academies have been already referred to in these columns and it may be remembered that they are institutions of quite recent origin having a two-fold object. In the first place they will import a new feature into medical study by introducing newly qualified men to the practical side of medicine more than is done at the universities. After the university medical curriculum has been completed and the State examination has been passed, the practical year which is required by recent regulations may be spent at the academies. Their second purpose is to supply the medical practitioners of the district with opportunities for post-graduate study. Up to the present time the only medical academy has been the one at Cologne; there was an intention of establishing a second one at Frankfort but the project failed because of the opposition of the medical profession in that city. The Düsseldorf Academy is the first for which clinics and lecture-rooms were specially built, because at Cologne the existing municipal hospitals were adapted for teaching purposes. The structural and other arrangements are described as excellent and the clinical material will certainly be abundant. A well-known surgeon, Professor Witzel, formerly of the University of Bonn, is the director of the new academy, while the teaching staff includes Professor Schlossmann in the subject of pædiatrics and Professor Lubarsch in the subjects of pathology and pathological anatomy. The medical academies at Düsseldorf and Cologne will probably be for a long time the only institutions of their kind.

Professor von Leyden's Valedictory Lecture.

Professor von Leyden, who is vacating the post of ordinary professor of clinical medicine and of director of the medical clinic held by him for 32 years, was the object of many demonstrations of sympathy and esteem on the delivery of his last clinical lecture. Many of his colleagues and former assistants as well as the staff of the clinic were present in addition to the students, and representatives of each group made short speeches appropriate to the occasion. Professor von Leyden was deeply impressed by this unexpected incident, and in acknowledging the compliments paid to him by the various speakers he gave a short history of the progress of clinical medicine since the days when as a student he listened to the clinical lectures of the late Professor Schönlein. Professor von Leyden's successor, Professor His of Göttingen, will enter on his duties at the beginning of the winter semester.

The Hospitals of Berlin.

The hospital accommodation in Berlin has been considerably increased during the last 12 months, especially by the completion of the new Virchow Hospital, containing about 2000 beds. Formerly it was a common occurrence for the daily newspapers to mention that owing to the crowded state of the hospitals it was necessary to refuse patients even when suffering from serious illness, and such patients had to go from one institution to another in search of a vacancy. The Statistical Office has recently published a report on the hospitals for the year 1904. There were then in Berlin 24 public and 68 private hospitals and sanatoriums, containing 9156 beds, each of which was on an average occupied during 298 days per annum. The number of beds had increased by 700 since the year 1903. With respect to the public hospitals, it is stated that 59,842 patients were discharged from them, that 9412 died, and that this relatively high mortality was partly due to the mortality in the infants' department. It must be remarked that the above statistics include only the hospitals of the city of Berlin without the newly opened Virchow hospital, and, of course, without the hospitals in the suburbs. The suburban local authorities have recently done good work in the way of hospital accommodation; some of their hospitals, such as the Charlottenburg and the Schöneberg hospitals, are constructed in complete accordance with modern requirements and their general arrangements are excellent.

Sanatoriums for Tuberculosis in Germany.

According to the report of Dr. Nietner, general secretary of the German central committee for the prevention of tuberculosis, there are at present in Germany 87 public and 35 private sanatoriums for tuberculous patients, a number considerably in excess of those existing in all the rest of Europe. There are also in course of construction 11 sanatoriums containing 800 beds. For tuberculous children there are 17 sanatoriums with 650 beds and for scrofulous children there are 67 with 6092 beds. Finally, 117 Fürsorgestellen (dispensaries), of which 31 are under municipal control according to Putter's system, 67 Walderholungsstätten (places where the patients spend the day, returning home in the evening), and two rural colonies complete the organisation controlled by the committee.

Discredited Medical Authors.[1]

The Union of the German Medical Press at its last meeting decided to compile a register of those authors who receive money for writing articles recommending new chemical compounds and other preparations, this being, of course, done in the interest of the chemical manufacturers concerned. In future the works of these authors will neither be accepted for insertion by the journals belonging to the union nor referred to. The first register has been issued and distributed to the members. The committee of the union hopes by this proceeding to place some restriction on an abuse which is inimical to the interests of the medical press and of the public as well.

August 12th.

BUDAPEST.

(FROM OUR OWN CORRESPONDENT.)

Prevention of Venereal Diseases.

THE National Committee for Preventing the Spread of Venereal Diseases recently held a conference which has been much commented upon. The opinion was expressed that the examination of prostitutes requires to be thorough, as all secretions of gonorrhœal cases must be scrutinised for gonococci after apparent recovery. The segregation of prostitutes in the so-called "bordels" or places under police supervision is strongly condemned, although this system is in full operation in Budapest. No proof is given that any special advantage is obtained thereby, as the factories in which there is so much female labour counterbalance the good. Professor Neisser has asserted that he is inclined to believe that everything that excites the passions or encourages unchastity, such as alcoholic excess, suggestive theatrical performances, and obscene literature, will increase the evil and that more supervision of our factories with perfect isolation of the immoral will go far to reduce it. To prevent the spread of syphilis immediate medical treatment is essential, but whether this should be provided free of charge is doubtful. Róna thinks that every member of the medical profession should have special instruction in all the skin diseases connected with syphilis in order to recognise it early and to check its further spread at once.

Surgical Teaching at Budapest.

Budapest is being resorted to by foreigners for the study of surgery, and this is becoming more evident every year. If those who go to study surgery at Budapest would first take the trouble to find out the conditions which obtain at that centre much vexation could be avoided. When it is remembered that surgeons like Professor Dollinger, Professor Réczey, Professor Herozel, and Professor Navratil have as many as 10 or 12 assistants each and that these gentlemen stand round the operating table, it will be easily understood that the spectators in the theatre reap but little benefit from their view of what is going on. The reason for this great number of assistants is that in Budapest it is not considered unethical to state that fact in a somewhat prominent way on the professional card and door-plate. As a matter of fact, the most advantageous way of studying surgery at Budapest is to take out, under one of the chief surgical assistants,

[1] Reference to this valuable and determined action on the part of the Union of the German Medical Press will be found in our report of the recent meeting of the International Medical Press in London.—ED. L.

a course of operations on the cadaver. This work is carried out with the personal assistance of the teacher, and in this manner a competent knowledge can be obtained. With regard to gynæcological operations, the best way to secure any return for the trouble and expense of studying at Budapest is to pay for a course of instruction under one of the chief assistants of the gynæcological surgeons, and this secures a welcome in the operating theatre. The amount of material in the hospitals of Budapest attracts a large number of students; but it is well for foreigners to remember that much time can be saved by careful selection of the methods of study.

Myopia in Hungarian Schools.

At a recent meeting of the Hygienic Society a report was read on an inquiry into the subject of myopia in Bihar county. About 2500 children were examined and the results of examination of the various school classes were tabulated. In the first school class the cases of myopia amounted to 12 per cent.; in the second the percentage was 8, in the third 4, in the fourth 3·3, in the fifth 1·8, and in the sixth 0·2, showing a gradually increased percentage with lengthened period of study. The reporter said that the tables demonstrated the great influence of the school in the development of myopia. For a comparison he also examined 560 pupils in private schools, where the well-to-do people send their children to learn. He found that there the percentage of myopia was only 1·4, a proof that the unfavourable conditions prevalent in public schools were the cause of the eye trouble. He observed very little follicular inflammation and never met with trachoma. There was one case of congenital cataract in a boy of 11 years who had been looked upon as idiotic, the ophthalmic affection having completely escaped the notice of the teachers. The school buildings were inspected from a hygienic point of view and condemned. Although newly constructed the seats were of an old-fashioned type and compelled a faulty position of the children sitting on them. The class rooms were comparatively dark, only one-third of the area of one large room receiving direct light from without. The heating of all the schools was also very imperfect and on account of the street noises the ventilation had to be subordinated to the comfort of the occupants of the class rooms.

August 10th.

NEW YORK.

(FROM OUR OWN CORRESPONDENT.)

Assistant Army Surgeons.

THE recent examination of applicants for the position of assistant surgeon in the army demonstrates the disadvantages under which the Medical Department labours on account of the failure of Congress to approve of measures of reform which would place that service on the same basis as other branches. There is nothing now in the medical service which invites young surgeons to enter it. The rank of the surgeon is inferior and the opportunities for promotion are few and far between. Of 33 candidates who were invited to appear and take the examination only 11 responded. Of these 11 who took the entire examination seven were found qualified, an unusually large proportion of successful candidates in comparison with past experience. There are now 31 vacancies in the junior grade of the Medical Department and the prospects of filling them are less favourable than for many years past.

Prohibiting Publicity of Treatment of Sexual or Menstrual Disorders.

The Legislature of the State of Colorado has passed an Act to protect the public morals by prohibiting the giving general publicity to treatment and devices for the cure or prevention of sexual or menstrual diseases. The law provides that it shall be unlawful for any person, association, partnership, or corporation to circulate, disseminate, spread, print, publish, or cause the circulation, dissemination, spreading, printing, or publication of any public advertisement, announcement, publication, notice, or information of the treatment, alleviation, palliation, cure, or prevention of any sexual or menstrual disease, weakness, or condition. But this Act shall not prevent such publication or dissemination of any such advertisement in exclusively medical publications and publications designed and circulated among dealers as trade journals not designed for public inspection.

Progress in the Care and Prevention of Tuberculosis.

It is a matter of surprise and congratulation that the prevention of tuberculosis and the better care of those suffering from that disease have taken such a deep and abiding hold upon the public mind and conscience. Throughout the entire United States the common people are moving with a determined purpose of exterminating the pestilence. It is interesting to notice the great variety of methods pursued to accomplish this object. In the State of Missouri societies for the prevention of tuberculosis are being formed in every town and all of these societies will be under the direction of a central organisation in order to secure harmony in their operations. The intention of the promoters of this scheme is to unite the entire people of the State in the common object of exterminating the disease in that section. In the State of Maryland a travelling "Tuberculosis Exhibit" has been organised for the general education of the people in the most approved methods of prevention and relief of tuberculosis. Besides showing charts, photographs, pathological specimens and models, the association, which has the management of the exhibit, will provide for lectures with stereopticon views where lanterns are available. In the State of Pennsylvania the immense public forests are about to be given up to the care and treatment of the tuberculous poor, the State providing simple "shaks" at the rate of a dollar per week. In the city of New York an abandoned ferry boat has been moored at a dock and made a very simple day-camp for consumptives. There is a trained nurse in charge with a regular visiting staff of physicians; the number of patients is 50 and the results obtained are in every way most satisfactory. These instances of novel methods of combating the common enemy might be multiplied indefinitely.

Military Hygiene in Public Schools.

In a prize essay Colonel Hoff, of the United States Army, makes the suggestion that the American Red Cross should exert its influence to have the elements of military hygiene taught to boys in the public schools. He states that such teaching would not add much to the course, nor would it make any intellectual demand beyond that which could be met by an average student. Its value would lie in teaching the student how to take care of himself in the field, what to do and what to avoid, and would give him the rules of right living and the reasons under the stress of a campaign. Boys who have learned these facts in early life would enter the military service so enlightened in regard to the best methods of preserving good health that the ordinary camp diseases would disappear. The same writer advises that the colleges and universities should be required to recognise these hygienic studies in their curricula. Especially is this true of the medical colleges which should make an adequate knowledge of military hygiene obligatory not only for the degree in medicine but for the State licences to practise medicine. It seems to Colonel Hoff that it is peculiarly the mission of the Red Cross to secure the reform in education which he proposes.

The Insurance Fee Question.

The final action of the American Medical Association on the question of fees for medical examination in insurance companies was to commit the subject to the State and county societies for such action as they may deem wise and proper. Heretofore, each physician was to fix the fee in each individual case as he might deem proper and the result was that there was no uniform charge on the part of the profession for these services. The insurance companies took advantage of this condition and succeeded in reducing the fee in many instances to a ridiculous figure. The recent action of the association makes it incumbent for local medical societies to fix the fees, and thus there will be uniformity of rates in each State or county.

August 3rd.

AUSTRALIA.

(FROM OUR OWN CORRESPONDENT.)

Hospital Affairs.

THE annual meeting of the friends and supporters of the Queen Victoria Homes for Consumptives of New South Wales was held on May 27th, the State Governor presiding. In the report it was stated that at the King's Tableland Home the daily average number of beds occupied was 45 and that

the total number now available was 48. The daily average at the Thirlmere Home was 30 and the number now available was 31. Of 55 patients discharged, 46 were improved, five were unimproved, and four died. The average residence of discharged cases was 222 days. At King's Tableland 101 cases had been admitted to the Home and 100 had been discharged. Most of the patients had followed indoor trades and occupations. The treatment adopted in all cases was the open-air or sanatorium system on the principles laid down by Bodington, Brehmer, Dettweiler, and Walther. Wright's method of calculating the specific resistance to the bacillus by means of the opsonic index had recently received attention and observations on this method were now being carried out at the home. Increase of weight occurred in 91 per cent. of the cases treated, the amount added varying from 1 to 36 pounds and averaging 14 pounds each. The average increase in 55 arrested cases was 16 pounds.—The Premier of New South Wales has decided to comply with the request of a deputation from the Alexandra Hospital for Sick Children, Sydney, for a grant of £2000 to meet current expenses and for a sum of £5000 towards erecting nurses' quarters being placed on the next estimates. He is also prepared to increase the amount on the estimates which may be earned annually as £ per £ subsidy from £2000 to £4000, provided the hospital continues the supervision of State children taken to the hospital for survey and will admit for treatment any among them who require it.—A vacancy has occurred in the position of honorary indoor surgeon at the Royal Prince Alfred Hospital, Sydney, owing to the completion of the term of service of Mr. C. P. B. Clubbe. Applications are invited for the post.—Mr. S. A. Ewing has been appointed specialist for diseases of the ear and throat at the Alfred Hospital, Melbourne, in succession to the late Dr. J. Cox.

Care of Inebriates.

The Victorian Government has completed arrangements for establishing an inebriate home at Lara, a small agricultural village some 36 miles from Melbourne, which was opened on July 1st. The New South Wales Government, on the other hand, has abandoned the project of establishing inebriate homes in the islands in the Hawkesbury River and has not yet made provision for imprisoning confirmed drunkards in the Darlinghurst Gaol, as it proposed in lieu thereof.

Friendly Societies and the Medical Profession.

The eighteenth annual meeting of the Friendly Societies' Association of New South Wales was held in Sydney when the annual report stated that the membership of the 18 affiliated societies was 101,463. The total funds stood at £960,668. The amount of sick pay paid was £83,375 and the amount paid for funeral benefits was £24,049. Other figures were: amount paid for medical benefits, £87,465; total receipts, £390,465; total expenditure, £314,491; increase of income over expenditure, £75,974; and interest earnings, £34,324. The figures were described to be "indicative of a healthy condition, though not yet equal to the figures of Victoria and New Zealand." The report further stated that the relations existing between the medical fraternity and the friendly societies were assuming proportions inimical to the best interests of the societies and that the publication of the form of agreement with the friendly societies, as finally adopted by the council of the British Medical Association, "put a kind of cap upon everything." At the request of this Association a conference was arranged and after two sittings its business had been determined. The proposed agreement comprised some ten sections and several subclauses. The final paragraph in the agreement where the wage limit came in was the rock upon which it was supposed the conference would materially differ. The medical officers were resolute for a wage limit to be fixed at the rate of £200 per annum. The friendly societies' representatives were equally opposed to any wage limit. Finally a compromise was arrived at, to be referred to the various societies, as follows: first, the adoption of the principle of the £200 wage limit at joining; secondly, subsequently to joining the wage limit to be increased to £300; and thirdly, members earning above £300 to be debarred from medical attendance; this wage limit not to be retrospective. The report was adopted. The honorary secretary urged the societies to see that they were not taken by surprise by the medical men. He was strongly opposed to the wage-limit, especially in country districts. He also said that in the metropolis opposition to the British Medical Association was being organised, a new society of medical men being formed, to be known as the "Australian Medical Association."

Strychnine in Mistake for Quinine.

A woman at Wallsend, New South Wales, has died suddenly after taking a powder supposed to be quinine. The Government analyst deposed that the packet labelled quinine consisted wholly of strychnine hydrochlorate and the stomach of the deceased woman contained strychnine. A son of the deceased deposed to purchasing the quinine and seeing the druggist write the label. He carried it straight to his mother, who then took some of the powder. The druggist who dispensed the powder admitted that the packet came from his shop and that the label was in his writing. He maintained that when it left the shop the packet contained quinine only. He could not possibly have dispensed strychnine hydrochlorate as he never had it in the shop, except in solution for dispensing purposes. The inquest lasted six days. In the result the coroner said that the druggist must be held responsible and accordingly committed him on a charge of manslaughter.

Poisoning by Carbon Monoxide.

An inquest was held in Sydney into the death of a woman who was found dead in her bed. It was shown that an escape of gas had occurred. The Government analyst stated that the gas supplied by the Australian Gas Light Company contained over 11 per cent. of carbon monoxide on account of the addition of water gas, while the percentage in English coal gas was about 6 per cent. The carbon monoxide being odourless was very dangerous to life when an escape occurred. Dr. A. A. Palmer said that the cause of death was poisoning by carbon monoxide and the excessive percentage of it in the illuminating gas accelerated the death.

Action for Malpraxis.

Dr. W. Trethowan of Perth, Western Australia, was recently defendant in an action in the Supreme Court of Western Australia and won the case. The plaintiff alleged that he sent for Dr. Trethowan to attend his son. Dr. Dawson, Dr. Trethowan's assistant, came and said that the boy had influenza. Subsequently Dr. Trethowan attended and advised his removal to hospital, where he died from typhoid fever. The patient was differently treated in the hospital. Mr. G. Cuthbert was called for the plaintiff and said that he had been subpœnæd against his will. He had been told by the counsel for the plaintiff that a certain medical man had made certain statements and he was asked to bear them out. He replied that he could not do so with truth. The judge expressed surprise at a medical man being dragged into the witness-box in such a manner. Dr. Stewart and Dr. Tafe were called but failed to respond and the case for the plaintiff closed. For the defence Dr. Dawson said that when he first saw the boy he thought that the illness was influenza, but subsequently found that it was typhoid fever. He then advised removal to hospital but the boy's mother objected. Dr. Trethowan said that when he saw the boy he regarded the case as one of typhoid fever and urged removal to hospital. The judge said that there was not a particle of evidence to show that Dr. Trethowan was either negligent or unskilful, and the jury completely exonerated both Dr. Trethowan and Dr. Dawson.

July 15th.

Medical News.

UNIVERSITY OF LONDON.—At examinations held recently the following candidates satisfied the examiners:—

PRELIMINARY SCIENTIFIC EXAMINATION.

PART I.

Inorganic Chemistry, Experimental Physics, and Biology.—William Daniel Arthur, Cardiff Intermediate School; Joe Edward Ashby, Epsom College; Vicente Atienza, Guy's Hospital; Cuthbert H. Attenborough, King's College; William Rawson Barlow, Middlesex Hospital; Grantley Barratt, London Hospital; Thomas Izod Bennett, Guy's Hospital; William Butterfield, South-Western Polytechnic; Thomas Philips Cole and David Arwyn Davies, Guy's Hospital; Isaac Milton Davies and John Prosser Davies, University College, Cardiff; Richard Denis Davy, London Hospital; Minnie Constance Dence, London (Royal Free Hospital) School of Medicine for Women; Macormack Charles F. Easmon, Epsom College; William Henry Edmunds, University College, Cardiff; George

Ernest Elkington, University of Birmingham; Abraham Solomon Erulkar, Guy's Hospital; Maud Frances Forrester-Brown, London (Royal Free Hospital) School of Medicine for Women; John Torbet Smith Gibson, St. Mary's Hospital; Marjory Winifred Godden, London (Royal Free Hospital) School of Medicine for Women; Thomas Chivers Graves, Royal Veterinary College; Olive Gertrude Mary Gray, London (Royal Free Hospital) School of Medicine for Women; Geoffrey Hadfield, Plymouth Technical Schools; Thomas Edwin Hammond, Cheltenham College and private tuition; Cecil Rhodes Harrison, St. Mary's Hospital; Philip Henry Henson, Epsom College; Bernard Whitchurch Howell, St. Bartholomew's Hospital; Frederic James Humphrys, St. Thomas's Hospital; John Cecil Jefferson, Victoria University of Manchester; Cecil Meredyth Jones, Cardiff Municipal Secondary School and private study; William Henry Kauntze, Victoria University of Manchester; Skene Keith, Guy's Hospital; Andrew Carey McAllister, King's College; John Finlayson Mackenzie, Guy's Hospital; Melville Douglas Mackenzie, Epsom College; Thomas Hartley Martin, University of Liverpool; William Matthews, Guy's Hospital; Philip Henry Mitchiner, St. Thomas's Hospital; John Forbes O'Connell, Epsom College; Charles Cyril Okell, private tuition; William David Owen, University College, Cardiff; Donovan Blaise Pascall, St. Bartholomew's Hospital; Richard Douglas Passey, Guy's Hospital; Cecil Joseph Herbert Pearson, London Hospital; William Agard Pocock, Cheltenham College; Arthur Leslie H. Rackham, Epsom College; Sidney Bertram Radley, Victoria University of Manchester; Noel Ravenchil Rawson, London Hospital; James Ewen Robertson-Ross, Epsom College; Samuel Pryce Rowlands, University College, Cardiff, and Tutorial School, Penarth; George William Shore and Sidney Smith, King's College; Douglas Benham Spence, Epsom College; William Steuart, St. Bartholomew's Hospital; Robert Swyer, London Hospital; Albert Joseph Tonkinson, West Bromwich Municipal Secondary School; Thomas Burges Welch, St. Mary's Hospital; Eva Muriel White, Bedford College; Cecil Leonard Williams, Plymouth Technical Schools; Thomas Davies Williams, London Hospital; and Edward Alfred Wilson, Middlesex Hospital.

Inorganic Chemistry and Experimental Physics.—Oscar Newrick William Brown, King's College and Westminster Hospital; George Rowland Dobrashian, Bootham School; *George Edward Genge-Andrews, Guy's Hospital; *Douglas Medlicott Gibson, St. Thomas's Hospital; *Melville Hocken, London Hospital; Richard Orthin Hilton Jones, Guy's Hospital; *James Duncan Lyle and *Harrold Winnock Parrott, London Hospital; *Cresswell Lee Pattison, St. Mary's Hospital; George Harold Pearson, London Hospital; Frederick Harold Rees, Cardiff Intermediate School; Arthur Leonard Shearwood, Whitgift Grammar School, Croydon; William Simpson, St. Bartholomew's Hospital; Winifred Christian Squires, London (Royal Free Hospital) School of Medicine for Women; Harold Eustace Thorn, St. Paul's School; and Frederick Edward Saxby Willis, Dulwich College.

Inorganic Chemistry and Biology.—Arthur Ernest Bullock, St. Paul's School; ‡Charlotte Grace Judge, London (Royal Free Hospital) School of Medicine for Women; Edward Athol Clarence Langton, Epsom College; Claude John Burgoyne Pasley, King's College and Westminster Hospital; and ‡Walter Salisbury, University College, Bristol.

Experimental Physics and Biology.—Edward Smith Abraham, University College, Bristol; Edward Bach, University of Birmingham; Henry Washington Batchelor, Berkhampsted School; Raymond Brewitt-Taylor, St. Bartholomew's Hospital; John Lloyd Davies, University College, Cardiff; John Yerbury Dent, King's College; Joseph De Silva, St. Mary's Hospital; Pattie Ruth Elliott, University College, Nottingham; Abel Evans, University College, Cardiff; William Stanley George, Guy's Hospital; Mary Isabel Hemingway, Ladies' College, Cheltenham; John Higgins London Hospital; Charles Eric Sweeting Jackson, St. Mary's Hospital; George Battersby Jameson, Victoria University of Manchester; Gwilym Rhys Pennant and Thomas Harold Phillips, University College, Cardiff; Reginald Norman Porritt, Epsom College; †William Barwise Sanders, University Tutorial College; Aubrey John Colby Tingey, University of Liverpool; and James Vaughan-James, University College, Cardiff.

Inorganic Chemistry only.—‡Francis Dighton Annesley, Guy's Hospital; Lancelot Gerard Bourdillon, Tonbridge School; ‡Israel Feldman, City of London School; *†Leonard S. Kempthorne, University College; Horace Mather, Cheltenham College and Guy's Hospital; *Francis Henry Balfour Percival, St. Bartholomew's Hospital; and Arthur Richard Sharrod and Joseph Alexander Tsoi-A-Sue, London Hospital.

Experimental Physics only.—*Mabel Kate Bishopp, London (Royal Free Hospital) School of Medicine for Women; †George James Bowen and Frederick William Theodore Clemens, University College, Bristol; *†Ardeshir Koyaji Contractor, University College and Grant Medical College, Bombay; *†Cyril Ernest A. Goddard, University College; *†Philip Withers Green, St. Mary's Hospital; Allen Coulter Hancock, Plymouth College and Technical Schools; *†Stuart Leighton Heard, London Hospital; *†Thomas Herbert Holroyd, University of Birmingham; *†George William Blomfield James, Derby Municipal Technical College; Leslie Mordaunt Ladell, London Hospital; Ronald Guy Lyster, Berkhamsted School; *†Margaret Josephine McEnery, Birkbeck College and University Tutorial College; Henry Ray Parsloe, Plymouth Technical Schools; Alexander Frederic Potter, St. Thomas's Hospital; Frederick John Rayner Simpson, King's College; Charles Marshall Stallard, Victoria University of Manchester; †Rupert Edward S. Waddington, St. Bartholomew's Hospital; *†Godfrey Alan Walker, Birkbeck and Epsom Colleges; *Honoria Josephine Wallace, University Tutorial College; and Francis Clark Watson, University of Leeds.

Biology only.—Edward Nettleton Balme, St. George's Hospital; Kenneth Dobing Bean, University of Leeds; ‡‡Andrew John Chillingworth and Percival Courtney Cole, St. Bartholomew's Hospital; Rolf Creasy, Guy's Hospital; Gertrude Dearnley, London (Royal Free Hospital) School of Medicine for Women; ‡‡David Marcus Hanson, University College; Adolph Gottlob Hieber, University College, Bristol; Edward Sancton Walls Hirsch, St. Mary's Hospital; ‡‡G. Barrowclough Horrocks, Victoria University of Manchester and private study; ‡‡Francis Harry Kelly, Middlesex Hospital; William Leslie, University Tutorial College; William Guy Lidderdale, University of Durham; Reginald Walter Little, University College, Cardiff; ‡‡Ernest Mannering Morris, Whitgift Grammar School, Croydon; George Vandeleur Ormsby, and Stylianos George Papadopoulos, St. Bartholomew's Hospital; Guy William Parry, University College, Cardiff; ‡‡H. T. Ratcliffe-Moloney, London Hospital; Eric Graham Saunders, St. Thomas's Hospital; ‡‡Maitland Scott, Guy's Hospital; Julian Taylor, University College; and †Edgar William Whiting, St. Bartholomew's Hospital.

* Already passed in Biology.
† Already passed in Inorganic Chemistry.
‡ Already passed in Experimental Physics.

PART II.

Organic Chemistry.—George Stanley Applegate, University College, Bristol; Edward Alfred Barker, Guy's Hospital and University College, Bristol; Thomas Beaton, University College, Cardiff; Cyril Carlyle Beatty, London Hospital; Alured C. L. O'S. Bilderbeck, St. Bartholomew's Hospital; Sydney Guy Billington, University of Birmingham; Gilbert Alan Blake, Guy's Hospital; George Francis Bradley, London Hospital; Gertrude Brooks, London (Royal Free Hospital) School of Medicine for Women; Arthur Barrett Cardew, Middlesex Hospital; Albert James Clarke, St. Bartholomew's Hospital; Irene Nancy Clough, London (Royal Free Hospital) School of Medicine for Women; John Warren Clouston, London Hospital; John Henry Cobb, University of Sheffield; Ardeshir Koyaji Contractor, University College and Grant Medical College, Bombay; Frank Cook, Guy's Hospital; Herbert William Cooke, University College, Bristol; Arnold Charles S. Courts, University College; Herbert Davies, University College; James Anthony Delmege, Guy's Hospital; Gertrude Margaret Dobrashian, London (Royal Free Hospital) School of Medicine for Women; Thomas Peters Edwards, St. Bartholomew's Hospital; Basil Franklin Eminson and Ralph Franklin Eminson, Charing Cross Hospital; David Benjamin Evans, University College, Cardiff; Eric Alfred Charles Fazan, Middlesex Hospital; James Maurice Foord, University of Leeds; James Rocheid Forrest, private study; William Charles Fowler, University College; Vincent Glendining, Guy's Hospital; Wilfrid Montague Glenister, St. Bartholomew's Hospital; Abdul Hamid Gool, Guy's Hospital; Alexander Keith Hamilton, University of Liverpool; Frederick Wood Hamilton, Middlesex Hospital; Reginald Gordon Hill, St. Bartholomew's Hospital; Robert Hamer Hodges, King's College; George Ashby Hooton, St. Bartholomew's Hospital; Herbert Leslie Hopkins, Guy's Hospital; Charlotte Leighton Houlton, London (Royal Free Hospital) School of Medicine for Women; Christopher Martin Ingoldby, London Hospital; James Moncrieff Joly, Cheltenham College and Guy's Hospital; Duncan Ince Jones, University College; Charles Dones Killpack, Guy's Hospital; Leon Levene and William Howard Lister, University College; Martin W. Littlewood, St. Thomas's Hospital; Joseph Howell Lloyd, private study; Gerald Roche Lynch, St. Mary's Hospital; Roy Kyffin Mallam, London Hospital; Geoffrey Marshall, Guy's Hospital; Henry Linnington Martyn, King's College; Pestanji Manekji Másiná, University College; Charles Edward Hamilton Milner, King's College; Patrick John Monaghan, Guy's Hospital; Harold Arundel Moody, King's College; John Grimson Moseley, London Hospital; Clement Treves Neve, St. Bartholomew's Hospital; Alfred Arthur Edmund Newth, King's College; Joan Fraser Parker, London (Royal Free Hospital) School of Medicine for Women; Bernard Rayne Parmiter, Guy's Hospital; Hubert Charles George Pedler, University College; Sara Louisa Penny, London (Royal Free Hospital) School of Medicine for Women; James Potter, London Hospital; Camilo Antonio Prada, St. Bartholomew's Hospital; William James Aitkin Quine, private study; Edward Gordon Reeve, Guy's Hospital; George FitzPatrick Rigden, King's College and Westminster Hospital; Stanley Ritson, King's College; Ffrangcon Roberts, Epsom College; Russell Rodgers, Guy's Hospital; Frederic Sanders, London Hospital; William Henry Price Saunders, Epsom College; Edward Gustave Schlesinger, Guy's Hospital; Charles Frank Schuler, St. Thomas's Hospital; Emmanuel Prinski Scott and William Geoffrey Shaw, London Hospital; Francis Robert Bradley Skrimshire, St. Thomas's Hospital; Geoffrey Troughton Smith, Guy's Hospital; Reginald Gershom Sparkes, St. Mary's Hospital; Ernest Gerald Stanley, St. Bartholomew's Hospital; James Lennox Stewart, Guy's Hospital; Ludwig Siebert Benjamin Tasker, University College; Horatio Thomas, University College, Cardiff; Francis Richard Todd and John Tremble, St. Bartholomew's Hospital; Arthur Bayford G. Underwood, University College; William Henry Vincent, St. Mary's Hospital; Richard Trevor Vivian, St. Bartholomew's Hospital; Michel Demètre T. Vlasto, University College; Harry Bertram Walker, London Hospital; Joseph Stephen Wallace, University College; George Edgar Septimus Ward, Middlesex Hospital; Harold Percy Warner, Guy's Hospital; Harvey H. Vincent Welch, St. Thomas's Hospital; and Horace Richard Wilson, Dalston Technical College and Paddington County Council Technical Laboratory.

N.B.—This list, published for the convenience of candidates, is issued subject to its approval by the Senate.

A new course on school hygiene, including lectures, demonstrations, and practical work, has been arranged to begin on Oct. 16th at University College. The course will be given by Professor Henry R. Kenwood and Dr. H. Meredith Richards. It is designed to meet the requirements of school teachers, school lecturers, and those qualifying for school inspectorships and for school medical officers. A certificate of proficiency will be granted to those who qualify themselves.

FOREIGN UNIVERSITY INTELLIGENCE.—*Berlin:* Dr. Victor Schmieden has been recognised as *privat-docent* of Surgery.—*Budapest:* Dr. Eugen Kollarits has been recognised as *privat-docent* of Neuropathology.—*Erlangen:* Dr. Oskar Schulz, *privat-docent* of Physiology, has been granted the

title of Extraordinary Professor.—*Giessen:* Dr. Dannemann, *privat-docent* of Psychiatry, has been promoted to an Extraordinary Professorship.—*Geneva:* Dr. R. de Seigneux, *privat-docent* of Midwifery and Gynæcology, has been promoted to an Extraordinary Professorship.—*Heidelberg:* Dr. Georg Herschel has been recognised as *privat-docent* of Surgery.—*Marburg:* Dr. R. van der Velden has been recognised as *privat-docent* of Anatomy.

PRESENTATION TO A MEDICAL PRACTITIONER.—Mr. Ivor Henry Davies, L.R.C.P. & S. Edin., L.F.P.S. Glasg., was entertained at dinner at the Porth Hotel, Porth, Glamorganshire, on July 31st, and was afterwards presented with an address, three silver fruit stands, and a bon-bon dish, as a mark of respect and esteem on the occasion of his leaving Porth.

CLEANLINESS OF THE MILK-SUPPLY IN CARDIFF.—It is gratifying to find that the public generally are beginning to realise that where milk is produced there must be cleanly surroundings. The model regulations under the Dairies, Cowsheds, and Milkshops Order require that, at the time of milking, the udder and teats of a cow shall be thoroughly clean and for neglecting to carry out this regulation a woman was recently fined 40*s.* by the stipendiary magistrate at Cardiff.

THE WEST AFRICAN MEDICAL STAFF.—The promotions of the following officers take effect from the dates given: Mr. W. H. Langley, C.M.G., principal medical officer in the Gold Coast from August 3rd; Mr. J. P. Fagan, deputy principal medical officer in Northern Nigeria from August 3rd; and Dr. St. G. Gray, senior medical officer in Southern Nigeria from April 19th. Dr. M. Cameron Blair, medical officer in Northern Nigeria, is promoted to be senior medical officer in Southern Nigeria from August 3rd. Dr. J. B. Tombleson, medical officer in Southern Nigeria, resigns his appointment on the ground of ill-health from August 7th. The following gentlemen have been appointed to the staff: Mr. P. F. Foran, Southern Nigeria, June 8th; Mr. W. A. Trumper, Northern Nigeria, June 29th; Mr. W. F. Todd, Sierra Leone, August 3rd; Mr. F. C. Hepburn, Southern Nigeria, August 10th; Dr. H. S. Coghill, Southern Nigeria, August 17th; and Mr. T. R. Beale-Browne, Southern Nigeria, August 17th.

THE JAMSETJEE JEEJEEBHOY HOSPITAL NURSING ASSOCIATION.—We learn from an article in the *Times of India* of July 6th that the committee of the Jamsetjee Jeejeebhoy Hospital Nursing Association, Bombay, has just published its report for 1906 and judging by the information supplied in our contemporary the document is evidently an unassuming record of good work performed under exceptional difficulties. In October last 18 members of the nursing staff, or about 20 per cent. of the total number, were simultaneously laid up with typhoid fever. Instead of nursing they had to be nursed, but, thanks to the devotion manifested by the remainder of the staff, the ordinary work of the establishment did not suffer to any great extent. In spite of this mischance the committee is able to announce an important extension in the nursing of the hospital. Several wards which formerly were looked after by native ward-boys and ayahs have now been placed under the supervision of trained nurses. This completes the nursing of the main hospital as well as of the extra Parsi ward. The committee also hopes to be soon able to deal with the eye and out-patients' departments and is drawing up proposals to this end for submission to Government. One of the things it has kept steadily in view is the training of native Indian nurses, Parsi and Hindu, who when fully trained are so much in demand by the general public that they command salaries which their teachers cannot afford to equal. Hitherto one of the chief troubles the committee has had to contend with has been the housing of the probationers, but the "Wadia Home for Nurses" is now approaching completion and will be ready for occupation next May. This home has been well designed and is substantially built, but before it can be used furniture must be procured at a cost of Rs. 15,000. To meet this the Government has granted Rs. 7500; for the balance the committee has to depend on "the philanthropic public of Bombay." No doubt the money will be forthcoming, as well as any additional sums that may be required. The Wadia home will not be able to accommodate the whole of the nursing staff of the Jamsetjee Jeejeebhoy Hospital. At present 28 nurses are living in a house which was acquired for the purposes of hospital extension. When it is razed, as must very soon be the case, accommodation will have to be found elsewhere. It is to be hoped that such devoted sick attendants will not be left homeless.

MEDICAL MAGISTRATE.—The name of Mr. Graham William White, L.D.S.R.C.S. Irel., has been added to the commission of the peace for the borough of Newport (Mon.).

UNIVERSITY COLLEGE, BRISTOL.—A Treasury grant of £4000 has been awarded to University College, Bristol.

DEATHS OF EMINENT FOREIGN MEDICAL MEN.—The deaths of the following eminent foreign medical men are announced:—Dr. Mikhael Radkevich, *privat-docent* of therapeutics in the University of Moscow.—Dr. Frederick R. Weber, professor of medicine in the Milwaukee Medical College.—Dr. Schlagdenhauffen, formerly professor of toxicology and of physics in Nancy.—Dr. Willoughby D. Miller, professor of odontology in the Ann Arbor University, Michigan. He was a medical graduate of Berlin and was well known both in Germany and in America on account of his bacteriological researches in connexion with the mouth and teeth. He also published a work on Conservative Dentistry.

Parliamentary Intelligence.

NOTES ON CURRENT TOPICS.

The Physical Condition of Glasgow Children.

AN important report made by Dr. W. LESLIE MACKENZIE (medical member of the Local Government Board for Scotland) and Captain A. FOSTER (inspector of physical training) on a collection of statistics as to the physical condition of children attending the public schools of the School Board for Glasgow has been printed as a Parliamentary blue-book. The tables and diagrams on which the report is based have been compiled with the coöperation of the teachers in 73 primary and higher-grade schools in Glasgow grouped in four divisions according to the character of the districts in which they were situated. Returns were made for 72,857 children, of whom 36,883 were boys and 35,974 were girls. Dr. MACKENZIE and Captain FOSTER state that this is the most extensive investigation ever undertaken in Britain as to the heights and weights of school children in primary and higher-grade schools. The tables and diagrams may legitimately be held to be a provisional standard for future investigations.

The Public Health Bill.

A committee of the House of Lords, including the Duke of NORTHUMBERLAND, the Earl of ONSLOW, the Earl of DONOUGHMORE, Lord FITZMAURICE, and Lord ALLENDALE has been appointed to examine the clauses of the Public Health Bill.

HOUSE OF LORDS.

THURSDAY, AUGUST 8TH.

The Vaccination Bill.

THE House went into committee on the Vaccination Bill.

Lord BALFOUR of BURLEIGH moved an amendment to the effect that the obligation of making the statutory declaration required by the Bill in order to obtain exemption should in the first instance rest upon the father of the child. He pointed out that the amendment would restore the Bill to the form it was in when it was originally introduced. An amendment extending the right of making a statutory declaration of objection to each parent was subsequently introduced in the Standing Committee of the House of Commons, but on that occasion it was strongly opposed by Mr. Burns and Dr. Macnamara, the representatives of the Local Government Board.

The Earl of CREWE resisted Lord Balfour's amendment. The fact that either parent might make the statutory declaration would conduce to the convenience of parties availing themselves of the Bill.

On a division the amendment was carried by 30 votes to 25.

The Bill was reported to the House.

Butter and Margarine Bill.

The House also considered the Butter and Margarine Bill in Committee.

Earl CARRINGTON moved a new clause to give the Local Government Board power after inquiry to make regulations to prohibit the use of preservatives which they thought undesirable or to limit their use in the preparation and sale of butter, margarine, or milk-blended butter.

The new clause was agreed to.

The Bill was ultimately reported to the House.

FRIDAY, AUGUST 9TH.

Vaccination (Scotland) Bill.

The Vaccination (Scotland) Bill was read a third time and passed.

HOUSE OF COMMONS.

WEDNESDAY, AUGUST 7TH.

An Irish Dispensary Appointment.

Mr. VINCENT KENNEDY asked the Chief Secretary to the Lord Lieutenant of Ireland to state why the Local Government Board refused to sanction the appointment of Dr. Clarke as temporary medical officer for the Bellananagh dispensary district; how near to this district did Dr. Clarke reside; had Dr. Clarke at present any dispensary; who had been in charge of this district for the past three months, and what appointments did he hold, distinguishing those which were temporary from the permanent appointments; and would this matter have his special attention in the interest of the sick poor of the district.—Mr. CHERRY (the Attorney-General for Ireland) replied: The appointment of Dr. Clarke as temporary medical officer for the Bellananagh dispensary district was objected to on the ground that his residence was outside the dispensary district and was inconvenient for the sick poor. The nearest point to the dispensary district was about three miles and the most remote nine miles from Cavan where Dr. Clarke lives. The Local Government Board has not sanctioned the appointment of Dr. Clarke as medical officer for any dispensary district. Dr. Clarke has been acting as temporary medical officer for the Bellananagh dispensary district since June 18th last but without sanction of the Board. He has also been appointed as temporary medical officer of the Kilnaleck and Stradone dispensary districts, but the Board has had to object to these appointments on the same grounds. The guardians by their action in continuing to employ Dr. Clarke may render themselves liable to surcharge for any payments they may make for his salary. Dr. Clarke has further been appointed as temporary medical officer to the Cavan workhouse from August 7th to Sept. 4th and to this appointment the Board has given its sanction.

THURSDAY, AUGUST 8TH.

Enteric Fever at Bulford Camp.

Mr. LONG asked the Secretary of State for War whether he could state how many outbreaks of typhoid fever had occurred at Bulford Camp and at what intervals; how many cases had resulted fatally; and what steps he proposed to take to protect the lives of officers and men from the grave risks to which they were exposed.—Mr. HALDANE replied: Since 1900 there have been 16 cases of enteric fever among the regular troops at Bulford—two in 1903, three in 1904, three in 1905, and eight in June, 1907. None of the cases were fatal. As regards the auxiliary forces, of whom 45,000 were encamped at Bulford in 1906, there were nine cases in the Honourable Artillery Company of which it is understood two proved fatal. Full investigations were carried out by specialist sanitary officers in the case of the outbreaks in 1904, 1906, and 1907, and though no definite cause for the origin of the disease can be traced, in each instance the available evidence pointed to the introduction of the infection from without and not to any defect in the camp area. The medical and sanitary arrangements of the camp are supervised by the principal medical officer of the Southern command and the administrative medical officer to the Tidworth district, who have the assistance of a specially qualified sanitary officer in dealing with the prevention of infectious disease amongst the troops.

Milk Carriage in Ireland.

Mr. HALPIN asked the Vice-President of the Department of Agriculture (Ireland) whether he would inquire into the railway system for carrying milk, seeing that the railway van was at present the only means by which long-distant milk could be conveyed from the producer to the public; whether he was aware that in some cases the van was dirty and ill-ventilated, and that along with the milk were carried hides, carcasses of meat, and live fowls; and whether he would use his influence with the railway companies to have milk carried in pure milk vans.—Mr. T. W. RUSSELL (in a written answer) replied: If by "railway van" is meant the guard's van the department is not aware that this is the only kind of vehicle by which milk is conveyed over long distances. The transit inspectors of the department have instructions to report any cases which come under their notice of milk being carried in dirty vehicles or with articles likely to taint it, and in any such reported cases the matter is taken up with the carrying company concerned. If specific instances are brought under the notice of the department they will have full inquiry made.

MONDAY, AUGUST 12TH.

Medical Inspection of School Children.

The House in dealing on report with the Education (Administrative Provisions) Bill considered the clause with respect to the medical inspection of school children.

Sir HENRY CRAIK moved an amendment that the local authorities should direct a medical inspection to take place where required by the Board of Education. The burden of carrying out a medical inspection was one which the Government should not place on the local authorities without taking a large share both financially and in scientific direction. If the Government were to press the clause forward let them bring forward a detailed scheme.

Mr. E. CECIL seconded the amendment.

Mr. MCKENNA hoped that the amendment would not be pressed. It was the intention of the Board of Education to establish a medical branch for the purposes of guiding the local authorities in the new work they would have to undertake. The formation of that branch had been occupying the attention of the Board for some time past. Its duties would be to collect information, collate it, and to give such instructions to the local authorities as would enable them to carry on their duties under the clause.

The amendment was negatived without a division.

Sir P. MAGNUS moved an amendment to give the local authorities powers to institute a system of periodic measurement of the children which would afford definite information on their physical condition and development. He emphasised the fact that what he proposed was of an optional character. He did not want to detain the House by enlarging on the great value of the information that would be supplied by an anthropometric measurement of school children. Its value had been pointed out at the Hygiene Congress and at the British Association. It would give them information to know whether physical deterioration was going on, and in this connexion he would draw the attention of the House to the valuable report on the condition of school children in Glasgow which had been made by Dr. Mackenzie and Captain Foster. The results which they had arrived at were of very great importance. They were almost startling, for they showed conclusively that the weight and height and physical condition of children depended absolutely on the conditions of the homes in which they were brought up.

Mr. BUTCHER seconded the amendment. He said that what they wanted was to get at some scientific basis of knowledge as regarded the laws of health affecting, above all, the population of great towns.

Mr. MCKENNA thought that the words of the clause covered the objects which the honourable gentleman had in view. They were covered by the words "attending to the health and physical condition of the children." If the amendment were not covered by the words of the clause it would impose a burden on the public funds and was therefore by the rules of the House out of order.

The amendment was negatived without a division.

The Bill was subsequently read a third time.

TUESDAY, AUGUST 13TH.

The Post Office Medical Department.

Mr. HUNT asked the Postmaster-General whether his attention had been called to the report of the Select Committee on Post Office Wages, paragraphs 43 to 47; whether the officer of the post office thus mentioned had since giving his evidence before the select committee been given a considerable increase to his salary; whether he would state the reasons leading to the additional emoluments being paid to this official after tendering such evidence; and, in view of the report, what steps were to be taken to insure efficient service in the post office medical department.—Mr. SYDNEY BUXTON (by written answer) replied: I have read the paragraphs referred to. As the honourable Member was informed, in reply to a question asked in this House on April 29th last, the increase in the salary of the chief medical officer was authorised, before he gave evidence before the committee, on the ground that the salary was not considered to afford adequate remuneration for the duties of the post. The recommendations of the select committee will receive the most careful consideration.

Lunatics in London Workhouses.

Mr. COOPER asked the President of the Local Government Board whether he could state the number of men and women, giving the number of each sex, who were detained in the London workhouses as harmless lunatics on account of senile decay or imbecility; if he could state whether any children and, if any, how many, were detained in the London workhouses because of imbecility or idiocy; whether he was aware that no child under five years of age could be admitted into one of the imbecile asylums of the Metropolitan Asylums Board; and whether he would consider the desirability of altering this regulation.—Mr. JOHN BURNS furnished the following written reply: The number of the insane in the London workhouses on January 1st last was 322, of whom 159 were men, 149 women, and 14 children The nature of the lunacy from which these persons were suffering is not specified in the returns. The rule that children under five years of age should not be admitted into the institutions of the Metropolitan Asylums Board for imbecile children was made because it was felt that a trustworthy judgment cannot be formed as to the intellectual condition of very young children. The Local Government Board have, however, intimated to the managers that they would favour arrangements for the reception of children of the kind in question in such a way that they might be carefully observed by an expert before being finally drafted into an asylum.

The Plague Statistics.

Mr. REES asked the Secretary of State for India whether the deaths from plague in June last amounted to more than 0·2349 per mille; and whether the like figure for the six months ended June amounted to more than 3·6 per mille of the population of India; what were the losses from cholera and fever and other chief epidemics for the same period; whether the like figures were available in respect of other parts of Asia of more or less similar climatic conditions; and, if so, whether he would lay them before the House.—Mr. MORLEY replied: The honourable Member has correctly stated the mortality from plague in India as a whole during June last and the six months ending June respectively. I am unable to give the corresponding figures for other epidemic diseases, as the mortality from them is not reported month by month to me. In 1905, the latest year for which complete figures for British India are available, the mortality rates for cholera, small-pox, and fevers were 1·97, 0·32, and 19·74 per mille respectively. I have no information that would enable me to reply to the last part of the question.

WEDNESDAY, AUGUST 14TH.

The Administration of the Vaccination Bill.

Sir WILLIAM COLLINS asked the President of the Local Government Board whether, in the event of the Vaccination Bill, 1907, passing into law, he would at once direct that revised notices to be given by registrars of births to persons registering the births of children containing the form of statutory declaration set out in the Schedule to the Bill, should be supplied to registrars of births in the month of September so as to enable persons desirous of taking advantage of the Act in January, 1908, to be provided with the necessary forms in respect of children born within four months of the passing of the Act.—Mr. JOHN BURNS (by written answer): I am aware that a new form of notice by registrars to persons registering the birth of children will be necessary in the event of the passing of the Bill. I am considering how far it may be practicable to meet the point suggested by my honourable friend.

Appointments.

Successful applicants for Vacancies, Secretaries of Public Institutions and others possessing information suitable for this column, are invited to forward to THE LANCET *Office, directed to the Sub-Editor, not later than 9 o'clock on the Thursday morning of each week, such information for gratuitous publication.*

ASH, EDWIN L., M.B. Lond., M.R.C.S. Eng., has been appointed Clinical Assistant at the Great Northern Central Hospital, London.

BATTERSBY, JAMES, F.R.C.S. Eng., has been appointed Lecturer on Anatomy in St. Mungo's College, Glasgow.

DANVERS, H., M.D. Parma, L.R.C.P. & S. Edin., L.F.P.S. Glasg., has been appointed Assistant Physician to the Italian Hospital, Queen-square, W.C.

ELLISON, FRANCIS CHARLES, M D. Dub., has been appointed Resident Medical Superintendent at the Mayo County Asylum, Castlebar.

KNOX, ROBERT, M.D. Edin., M.R.C.S. Eng., L.R.C.P. Lond., has been appointed Medical Officer in charge of the Electrical Department at the Great Northern Central Hospital.

MUIR, GAVIN D., M.B., Ch.B. Glasg., has been appointed Resident Medical Officer at the Royal Albert Hospital, Devonport.

PENNY, SYDNEY GREENWOOD, L.R.C.P. Lond., M.R.C.S., has been appointed Medical Officer for the Fourth District by the Penzance Board of Guardians.

THOMAS, J. H., L.R.C.P. Edin., M.R.C.S. Eng., has been appointed Certifying Surgeon under the Factory and Workshop Act for the Market Harborough District of the county of Leicester.

Vacancies.

For further information regarding each vacancy reference should be made to the advertisement (see Index).

ABERDEEN PROVINCIAL COMMITTEE FOR THE TRAINING OF TEACHERS.—Lecturer on Hygiene. Salary £400.

BIRMINGHAM AND MIDLAND HOSPITAL FOR SKIN AND URINARY DISEASES.—Clinical Assistant. Salary at rate of 52 guineas per annum.

BIRMINGHAM GENERAL HOSPITAL.—Three Receiving-room Officers. Salary £150 per annum.

BIRMINGHAM, QUEEN'S HOSPITAL.—House Physician. Also Obstetric and Ophthalmic House Surgeon for seven months. Salaries at the rate of £50 per annum, with board, lodging, and washing.

BOMBAY MUNICIPALITY.—Two Assistant Health Officers. Salaries Rs. 750, rising to Rs. 1000, and Rs. 600, rising to Rs. 750 per mensem respectively.

BRADFORD SANATORIUM FOR CONSUMPTIVES, Eastby, near Skipton.—Resident Medical Officer. Salary £100, with rations, apartments, and washing.

BRIDGNORTH AND SOUTH SHROPSHIRE INFIRMARY.—House Surgeon. Salary £100 per annum, with board and lodgings.

BRISTOL ROYAL INFIRMARY.—Resident Junior House Surgeon; also Resident Casualty Officer, each for six months. Salaries at rate of £50 per annum, with board, lodging, and washing.

BURY INFIRMARY.—Junior House Surgeon. Salary £80, increasing to £90, with board, residence, and attendance.

BUXTON, DEVONSHIRE HOSPITAL.—Assistant House Surgeon for six months. Salary £70 per annum, with apartments, board, and laundry.

CAIRO, SCHOOL OF MEDICINE (EGYPTIAN GOVERNMENT, MINISTRY OF EDUCATION).—Assistant to the Professor of Pathology. Salary £E. 320 per annum.

DERBY COUNTY ASYLUM, Mickleover.—Junior Assistant Medical Officer. Salary £120, rising to £150 per annum, with apartments, board, washing, and attendance.

DEVON COUNTY ASYLUM.—Assistant Medical Officer. Salary £140, with board, apartments, and laundry.

DOVER, ROYAL VICTORIA HOSPITAL.—House Surgeon, unmarried. Salary £100 a year, with board, lodging, and washing.

DUBLIN, ROYAL VICTORIA EYE AND EAR HOSPITAL, Adelaide-road.—House Surgeon. Salary £40, with board and residence.

DUDLEY, GUEST HOSPITAL.—Assistant House Surgeon for six months. Salary £60 per annum, with residence, board, and washing.

DUMFRIES AND GALLOWAY ROYAL INFIRMARY.—Assistant House Surgeon. Salary £40 per annum, with board and washing.

EGYPTIAN GOVERNMENT, KASR-EL-AINY HOSPITAL.—Resident Medical Officer. Pay £250 a year, with quarters, servants, washing, coals, and light.

EPPING UNION.—District Medical Officers and Public Vaccinators for Parndon District, for the Parish of Roydon, and for the Parish of Nazeing. Salaries £32, £30, and £40 per annum, and fees.

GLASGOW DISTRICT ASYLUM, Woodilee, Lenzie.—Assistant Medical Officer. Salary £135 per annum, with board, lodging, &c.

HUDDERSFIELD INFIRMARY.—Junior House Surgeon. Salary £60 per annum, with board, residence, and washing.

HULL, ROYAL INFIRMARY.—Casualty House Surgeon. Salary £50, with board and lodging.

KENSINGTON GENERAL HOSPITAL, Earl's Court, London, S.W.—Senior and Junior Resident Medical Officer. Salary £60 and £40 per annum respectively, with board, washing, and residence.

LOWESTOFT HOSPITAL.—House Surgeon, unmarried, for six months. Salary at rate of £80 per annum, with board, lodgings, and washing.

LOUGHBOROUGH AND DISTRICT GENERAL HOSPITAL AND DISPENSARY.—Resident House Surgeon. Salary £100 a year, with rooms, attendance, board, and washing.

MANCHESTER, ANCOATS HOSPITAL.—Resident House Physician. Salary £80 per annum, with board, residence, &c.

MANCHESTER WORKHOUSE, Crumpsall.—Assistant Medical Officer. Salary £110 per annum, with apartments, fire, light, washing, and attendance.

NORTHAMPTON GENERAL HOSPITAL.—Assistant House Surgeon. Salary £50 a year, with apartments, board, washing, and attendance.

ORKNEY, PARISH OF ROUSAY AND EGILSHAY.—Resident Medical Officer. Salary £51 per annum.

PENDLETON, SALFORD UNION INFIRMARY, Hope.—Resident Medical Officer. Salary £130 per annum, with apartments and attendance.

PRESTWICH, MANCHESTER, COUNTY ASYLUM.—Junior Assistant Medical Officer, unmarried. Salary £150, increasing to £250, with board, apartments, and washing.

ST. PETER'S HOSPITAL FOR STONE, &c., Henrietta-street, Covent Garden, W.C.—Junior House Surgeon for six months. Salary at rate of £50 a year, with board, lodging, and washing.

SOUTHPORT INFIRMARY.—Resident Senior House Surgeon, unmarried, for six months. Salary at rate of £90 per annum, with residence, board, and washing.

STOCKPORT INFIRMARY.—Junior Assistant House Surgeon for six months. Salary £40 per annum, with board, washing, and residence.

STOKE-ON-TRENT, NORTH STAFFORDSHIRE INFIRMARY AND EYE HOSPITAL, Hartshill.—Junior House Surgeon. Salary £50 per annum, with board, apartments, and washing.

SURREY, LONDON COUNTY ASYLUM, Long Grove, Epsom.—Assistant Medical Officer. Salary £180 a year, with board, apartments, and washing.

TAUNTON AND SOMERSET HOSPITAL, Taunton.—Resident Assistant House Surgeon for six months. Salary at rate of £50 per annum, with board, lodging, and laundry.

WEST LONDON HOSPITAL, Hammersmith-road, W.—Two House Physicians and Three House Surgeons, tenable for six months.

WORCESTER COUNTY AND CITY ASYLUM.—Assistant Medical Officer, unmarried. Salary £140, rising to £160, all found.

YORK COUNTY HOSPITAL.—House Surgeon. Salary £100 per annum, with board, residence, and washing.

YORK DISPENSARY.—Two Resident Medical Officers, unmarried. Salaries £120 per annum, with board, lodging, and attendance.

THE Chief Inspector of Factories, Home Office, S.W., gives notice of a vacancy as Certifying Surgeon under the Factory and Workshop Act at Strathmiglo, in the county of Fife.

Births, Marriages, and Deaths.

BIRTHS.

COOKE.—On August 7th, at Fairholm, Walsall, the wife of John G. Cooke, M.B. Cantab., of a son.

COOPER.—On August 6th, at Great Portland-street, W., the wife of A. Tanner Cooper, M.R.C.S., L.R.C.P., of a son.

EVANSON-JONES.—On August 8th, at Ashton Old-road, Manchester, the wife of E. Evanson-Jones, L.R.C.P. & S. Edin., L.F.P.S. Glasg., of a son.

HARMAN.—On August 10th, at Harley-street, W., the wife of N. Bishop Harman, F.R.C.S., of a son.

HATRICK.—On August 11th, at Welland House, New Barnet, Herts, the wife of Charles D. Hatrick, M.D., of twin daughters.

KEY.—On August 12th, at Valetta, Clarendon-road, Southsea, the wife of M. Aston Key, M.B., B.C. Camb., of a daughter.

SMITH.—On August 11th, at Walden House, Watford, the wife of G. Francis Smith, M.R.C.S. Eng., L.R.C.P. Lond., of a son.

MARRIAGE.

MILLARD—FOSTER.—On June 26th, at Aliwal North, Cape Colony, Philip E. Millard, M.D., to Edith Ursula, daughter of the late W. H. Foster, Esq.

DEATHS.

BROWN.—On August 12th, aged 50 years, Walter Henry Brown, M.Sc. Leeds, F.R.C.S. Irel., M.R.C.S. Eng., of Highfield House, Headingley, Leeds.

MORISON.—At 8, Ross-road, Wallington, Surrey, on August 13th, in her eighty-second year, Margaret Gordon Maclellan, widow of Alexander Cushnie Morison, Esq., Surgeon in the Military Service of the Honourable East India Company.

WILLIAMS.—On August 11th, at 48, Prince of Wales-road, Norwich, Charles Williams, F.R.C.S.E.

N.B.—A fee of 5s. is charged for the insertion of Notices of Births, Marriages, and Deaths.

During the week marked copies of the following newspapers have been received:—*Gloucestershire Echo, Stowmarket Weekly Post, Daily Graphic, Daily News, Standard, Sussex News, Tribune, Daily Telegraph, Morning Post, Hereford Times, Yorkshire Daily Observer, Newcastle Daily Chronicle, Bombay Gazette, Edinburgh Evening Dispatch, Fife Herald, Justice, Black and White, Nottingham Evening News, Rand Daily Mail, Newcastle Chronicle, Free Lance, &c.*

Notes, Short Comments, and Answers to Correspondents.

A POINT IN POOR-LAW PROCEDURE.

WE have received some newspaper cuttings which refer to a rather curious point which has recently arisen before the Watford board of guardians. It appears that a patient in the Watford Infirmary was operated upon by Dr. James Buchanan, the district medical officer of Watford who had occasion to ask a brother practitioner to administer an anæsthetic. Dr. Buchanan accordingly applied to the board for payment of one guinea to the medical man in question, when the board riposted by asking Dr. Buchanan why he had operated upon the patient instead of obeying the instructions of the board to transfer the case to the Watford District Hospital. Some of the guardians proceeded to take a very high hand with Dr. Buchanan. One lady objected to the payment of the fee which would have been avoided if the patient had gone to the district hospital. Another called attention to the medical man's disobedience to orders; and a gentleman with a military title laid stress upon the fact that the medical man was the servant of the board. At the next meeting of the board, however, one of the guardians read a letter from the treasurer of the Watford District Hospital saying, "Pauper patients are not admitted to the hospital. The infirmary is the proper place for pauper patients," a document which showed that the alleged disobedience of the medical man was really an appreciation of the proper course to be pursued. We think that the action of the board shows an amount of distrust of their medical officer which is a little remarkable. Of course, the proper person to perform ordinary operations upon patients in the Poor-law infirmary is the medical officer of the infirmary, and the proper place for their performance is the infirmary; and the fee for the administration of an anæsthetic ought not to be grudged to the unfortunate patient; and the board ought not to attempt to sponge upon the district hospital.

A MEDICAL OFFICER OF HEALTH AND A PRESCRIBING DRUGGIST.

AN unusual scene recently occurred at a meeting of the Stowmarket urban district council, in which the protagonists were the medical officer of health of the district, Dr. C. W. Low, and the chairman of the council, Mr. Gostling, a druggist of the town. Dr. Low reported to the council that a local druggist, whom he did not name, had failed to notify a case which he (the druggist) had recognised as erysipelas and prescribed for as such. Dr. Low submitted that this was an infringement of the Act which requires that in default of the nearest relative, every person in charge of, or in attendance upon, the patient suffering from a notifiable infectious disease shall send notice of a case to the medical officer of health. An animated discussion ensued between the chairman and Dr. Low, the former objecting to the use of the term "druggist" to denote a pharmaceutical chemist and insisting that Dr. Low had used the word contemptuously, which the latter denied. The chairman then asked whether Dr. Low thought a druggist was capable of diagnosing erysipelas and received the very proper answer that whether he had correctly diagnosed it or not, if a druggist believed a case to be erysipelas and treated it as such he was bound to notify it to the medical officer of health. The debate waxed somewhat acrimonious and it shortly became apparent that it concerned the chairman intimately, for at his urgent instance Dr. Low reluctantly informed the council that the chairman himself was the offending druggist. There was a good deal more discussion which led to nothing except a suggestion from a councillor that Dr. Low had acted rightly in reporting the matter. It is obvious that he did no more than his duty and that Mr. Gostling had failed to comply with the provisions of the Act.

A NEW RAILWAY SALOON FOR INVALIDS.

THE London and North-Western Railway Company has forwarded to us a description of a new type of saloon that it has recently constructed for the accommodation of invalids which seems to mark a considerable advance on anything of the sort that has been produced hitherto. The saloon contains a central compartment, which is 18 feet long, for the invalid, entered by folding-doors which admit of the introduction of a bath-chair. This portion contains a fully furnished brass bedstead and a couch and lounge chairs of a comfortable aspect. The apartment has been elaborately upholstered and has been planned with a view to avoid vibration as much as possible. A lavatory adjoins the saloon and at each end of the coach are a first-class compartment with lounge chairs that can be converted into beds and a lavatory adjoining each. Every possible comfort and convenience for an invalid and his companions who desire to make a long journey seem to have been provided. Medical men having feeble or bedridden patients whom they wish to send away from home on this company's system may be glad to know of this service, which will probably be followed by the other large railway companies.

HOSPITAL PARASITES.

THE *World* in its issue for August 13th contains a most useful article for public consumption which is headed "Parasites: A Study of Lay Ethics." The article contains a singularly straightforward statement of the main facts of the abuse of hospital out-patient departments by non-indigent persons. The writer points out the triple fraud that is daily perpetrated upon the deserving poor, the charitable public, and the medical profession, and remarks:—"For the comparatively well-to-do to abuse hospital charity is therefore, perhaps, the meanest type of fraud the resources of latter-day civilisation have yet evolved." He proceeds to express his conviction, from personal investigations, that it is not the wealthy who personally defraud hospital charity. "The legendary duchess, who, borrowing her maid's gown, attends the out-patient department in order to economise her fee for medical advice, is apocryphal. ..... The parasites on hospital charity prey vicariously. They send their servants and dependants." The writer fairly claims that a domestic servant, earning a good wage, besides her board and lodging, is not a fit subject for free medical relief, even if her employer is unwilling to assist her in obtaining medical advice. He very rightly lays stress on the evil tendency that the hospital letter system has in promoting this form of abuse. In acquitting the wealthy classes of defrauding the hospitals in person, he qualifies his verdict as follows: "If they are on economy bent a much more comfortable plan (and one very generally practised) is to call in a medical man and then not to pay the fee until a convenient season or even until active unpleasantness threatens. At whatever inconvenience to himself, the doctor can always wait." He proceeds, however, to record an amusing instance of how a surgeon did not wait, much to the discomfiture of a wealthy parasite. We are pleased to read in a widely read newspaper so able a statement of the dishonest actions to which many otherwise respectable persons will stoop in their dealings with medical men, and we trust that the message may reach at least a few of these offenders.

WANTED—A HOME.

To the Editors of THE LANCET.

SIRS,—I should be glad if you could tell me of a sanatorium where a young artisan suffering from pulmonary tuberculosis and asthma could be treated for a few weeks; he can only pay about £5. His condition is steadily improving. If unable to give the information, would you ask your readers if they could do so.

I am, Sirs, yours faithfully,

August 13th. P. S. L.

*** As a rule, patients suffering from asthma with pulmonary tuberculosis do not do well under sanatorium treatment. We do not know of any sanatorium to which the patient could be sent for much more than a week on a payment of £5. As he is improving had he not better stay where he is?—ED. L.

Etiquette.—We do not think that our correspondent should advertise his change of address in the newspaper, at any rate he must only do so with discretion. He should send notices round to his patients.

Suffolk.—We do not think that any such institution exists either in France or in Italy.

COMMUNICATIONS not noticed in our present issue will receive attention in our next.

Medical Diary for the ensuing Week.

OPERATIONS.

METROPOLITAN HOSPITALS.

MONDAY (19th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), St. George's (2 P.M.), St. Mary's (2.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), Chelsea (2 P.M.), Samaritan (Gynæcological, by Physicians, 2 P.M.), Soho-square (2 P.M.), City Orthopædic (4 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (9.30 A.M.), Royal Free (2 P.M.), Guy's (1.30 P.M.), Children, Gt. Ormond-street (3 P.M.), St. Mark's (2.30 P.M.).

TUESDAY (20th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), West London (2.30 P.M.), University College (2 P.M.), St. George's (1 P.M.), St. Mary's (1 P.M.), St. Mark's (2.30 P.M.), Cancer (2 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), Soho-square (2 P.M.), Chelsea (2 P.M.), Central London Throat and Ear (2 P.M.), Children, Gt. Ormond-street (2 P.M., Ophthalmic, 2.15 P.M.), Tottenham (2.30 P.M.).

WEDNESDAY (21st).—St. Bartholomew's (1.30 P.M.), University College (2 P.M.), Royal Free (2 P.M.), Middlesex (1.30 P.M.), Charing Cross (3 P.M.), St. Thomas's (2 P.M.), London (2 P.M.), King's College (2 P.M.), St. George's (Ophthalmic, 1 P.M.), St. Mary's (2 P.M.), National Orthopædic (10 A.M.), St. Peter's (2 P.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Gt. Northern Central (2.30 P.M.), Westminster (2 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Cancer (2 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.),

Royal Ear (2 P.M.), Royal Orthopædic (3 P.M.), Children, Gt. Ormond-street (9.30 A.M., Dental, 2 P.M.), Tottenham (Ophthalmic, 2 30 P.M.).

THURSDAY (22nd).—St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), University College (2 P.M.), Charing Cross (3 P.M.), St. George's (1 P.M.), London (2 P.M.), King's College (2 P.M.), Middlesex (1.30 P.M.), St. Mary's (2.30 P.M.), Soho-square (2 P.M.), North-West London (2 P.M.), Gt. Northern Central (Gynæcological, 2.30 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Royal Orthopædic (9 A.M.), Royal Ear (2 P.M.), Children, Gt. Ormond-street (2.30 P.M.), Tottenham (Gynæcological, 2.30 P.M.).

FRIDAY (23rd).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Charing Cross (3 P.M.), St. George's (1 P.M.), King's College (2 P.M.), St. Mary's (2 P.M.), Ophthalmic (10 A.M.), Cancer (2 P.M.), Chelsea (2 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), City Orthopædic (2.30 P.M.), Soho-square (2 P.M.), Central London Throat and Ear (2 P.M.), Children, Gt. Ormond-street (9 A.M., Aural, 2 P.M.), Tottenham (2.30 P.M.), St. Peter's (2 P.M.).

SATURDAY (24th).—Royal Free (9 A.M.), London (2 P.M.), Middlesex (1.30 P.M.), St. Thomas's (2 P.M.), University College (9.15 A.M.), Charing Cross (2 P.M.), St. George's (1 P.M.), St Mary's (10 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Children, Gt. Ormond-street (9.30 A.M.).

At the Royal Eye Hospital (2 P.M.), the Royal London Ophthalmic (10 A.M.), the Royal Westminster Ophthalmic (1.30 P.M.), and the Central London Ophthalmic Hospitals operations are performed daily.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

MONDAY (19th).—POST-GRADUATE COLLEGE (West London Hospital, Hammersmith road, W.).—12 noon: Pathological Demonstration:—Dr. Low. 2 P.M.: Medical and Surgical Clinics. X Rays. Mr. Dunn: Diseases of the Eye. 2.30 P.M.: Operations.

TUESDAY (20th).—POST-GRADUATE COLLEGE (West London Hospital, Hammersmith road, W.).—10 A.M.: Dr. Moullin: Gynæcological Operations. 2 P.M.: Medical and Surgical Clinics. X Rays. Dr. Ball: Diseases of the Throat, Nose, and Ear. 2.30 P.M.: Operations. Dr. Abraham: Diseases of the Skin. 5 P.M.: Lecture:—Dr. Saunders: Examination of Severe Cases of Gastric Disorder.

WEDNESDAY (21st).—POST-GRADUATE COLLEGE (West London Hospital, Hammersmith-road, W.).—10 A.M.: Dr. Ball: Diseases of the Throat, Nose, and Ear. Dr. Saunders: Diseases of Children. 2 P.M.: Medical and Surgical Clinics. X Rays. Diseases of the Eye. 2.30 P.M.: Operations.

THURSDAY (22nd).—POST-GRADUATE COLLEGE (West London Hospital, Hammersmith-road, W.).—2 P.M.: Medical and Surgical Clinics. X Rays. Mr. Dunn: Diseases of the Eye. 2.30 P.M.: Operations.

FRIDAY (23rd).—POST-GRADUATE COLLEGE (West London Hospital, Hammersmith-road, W.).—10 A.M.: Dr. Moullin: Gynæcological Operations. 2 P.M.: Medical and Surgical Clinics. Dr. Ball: Diseases of the Throat, Nose, and Ear. X Rays. 2.30 P.M.: Operations. Dr. Abraham: Diseases of the Skin. 5 P.M.: Lecture:—Dr. Ball: Some Common Symptoms of Throat and Nose Diseases.

SATURDAY (24th).—POST-GRADUATE COLLEGE (West London Hospital, Hammersmith-road, W.).—10 A.M.: Dr. Ball: Diseases of the Throat, Nose, and Ear. 2 P.M.: Medical and Surgical Clinics. X Rays. Diseases of the Eye. 2.30 P.M.: Operations.

EDITORIAL NOTICES.

IT is most important that communications relating to the Editorial business of THE LANCET should be addressed *exclusively* "TO THE EDITORS," and not in any case to any gentleman who may be supposed to be connected with the Editorial staff. It is urgently necessary that attention be given to this notice.

It is especially requested that early intelligence of local events having a medical interest, or which it is desirable to bring under the notice of the profession, may be sent direct to this office.

Lectures, original articles, and reports should be written on one side of the paper only, AND WHEN ACCOMPANIED BY BLOCKS IT IS REQUESTED THAT THE NAME OF THE AUTHOR, AND IF POSSIBLE OF THE ARTICLE, SHOULD BE WRITTEN ON THE BLOCKS TO FACILITATE IDENTIFICATION.

Letters, whether intended for insertion or for private information, must be authenticated by the names and addresses of their writers—not necessarily for publication.

We cannot prescribe or recommend practitioners.

Local papers containing reports or news paragraphs should be marked and addressed "To the Sub-Editor."

Letters relating to the publication, sale and advertising departments of THE LANCET *should be addressed "To the Manager."*

We cannot undertake to return MSS. not used.

MANAGER'S NOTICES.

THE INDEX TO THE LANCET.

THE Index to Vol. I. of 1907, which was completed with the issue of June 29th, and the Title-page to the Volume, were given in THE LANCET of July 6th.

VOLUMES AND CASES.

VOLUMES for the first half of the year 1907 are now ready. Bound in cloth, gilt lettered, price 18*s.*, carriage extra.

Cases for binding the half-year's numbers are also ready. Cloth, gilt lettered, price 2*s.*, by post 2*s.* 3*d.*

To be obtained on application to the Manager, accompanied by remittance.

TO SUBSCRIBERS.

WILL Subscribers please note that only those subscriptions which are sent direct to the Proprietors of THE LANCET at their Offices, 423, Strand, London, W.C., are dealt with by them? Subscriptions paid to London or to local newsagents (with none of whom have the Proprietors any connexion whatever) do not reach THE LANCET Offices, and consequently inquiries concerning missing copies, &c., should be sent to the Agent to whom the subscription is paid, and *not* to THE LANCET Offices.

Subscribers, by sending their subscriptions direct to THE LANCET Offices, will insure regularity in the despatch of their Journals and an earlier delivery than the majority of Agents are able to effect.

THE COLONIAL AND FOREIGN EDITION (printed on thin paper) is published in time to catch the weekly Friday mails to all parts of the world.

The rates of subscriptions, post free, either from THE LANCET Offices or from Agents, are:—

FOR THE UNITED KINGDOM.		TO THE COLONIES AND ABROAD.	
One Year	£1 12 6	One Year	£1 14 8
Six Months	0 16 3	Six Months	0 17 4
Three Months	0 8 2	Three Months	0 8 8

Subscriptions (which may commence at any time) are payable in advance. Cheques and Post Office Orders (crossed "London and Westminster Bank, Westminster Branch" should be made payable to the Manager, Mr. CHARLES GOOD, THE LANCET Offices, 423, Strand, London, W.C.

TO COLONIAL AND FOREIGN SUBSCRIBERS.

SUBSCRIBERS ABROAD ARE PARTICULARLY REQUESTED TO NOTE THE RATES OF SUBSCRIPTIONS GIVEN ABOVE. It has come to the knowledge of the Manager that in some cases higher rates are being charged, on the plea that the heavy weight of THE LANCET necessitates additional postage above the ordinary rate allowed for in the terms of subscriptions. Any demand for increased rates, on this or on any other ground, should be resisted. The Proprietors of THE LANCET have for many years paid, and continue to pay, the whole of the heavy cost of postage on overweight foreign issues; and Agents are authorised to collect, and generally do so collect, from the Proprietors the cost of such extra postage.

The Manager will be pleased to forward copies direct from the Offices to places abroad at the above rates, whatever be the weight of any of the copies so supplied. Address—THE MANAGER, THE LANCET OFFICES, 423, STRAND, LONDON, ENGLAND.

METEOROLOGICAL READINGS.

(Taken daily at 8.30 a.m. by Steward's Instruments.)

THE LANCET Office, August 15th, 1907.

Date.	Barometer reduced to Sea Level and 32° F.	Direction of Wind.	Rainfall.	Solar Radio in Vacuo.	Maximum Temp. Shade.	Min. Temp.	Wet Bulb.	Dry Bulb.	Remarks.
Aug. 9	29·95	S.W.	...	97	71	61	60	63	Overcast
,, 10	29·75	S.W.	0·02	118	71	58	57	60	Cloudy
,, 11	29·99	W.	...	123	73	54	58	63	Fine
,, 12	30·05	W.	...	115	68	54	58	64	Cloudy
,, 13	30·13	W.	...	117	72	57	59	63	Fine
,, 14	29·97	S.W.	...	124	75	62	61	66	Fine
,, 15	29·65	W.	0·35	116	68	57	57	61	Cloudy

Communications, Letters, &c., have been received from—

A.—Dr. B. Anningson, Cambridge; Dr. A. Anderson, Rosewood, Queensland; Ancoats Hospital, Manchester, Secretary of; Messrs. Allen and Hanburys, Lond.; Dr. H. W. Armit, Lond.; Aeosan Co., Birmingham.

B.—Mr. W. Bryce, Edinburgh; Birmingham General Hospital, House Governor of; Birmingham and Midland Skin, &c., Hospital, Secretary of; Messrs. A. and C. Black, Lond.; Bury Dispensary, Secretary of; Bailbrook House, Bath, Medical Superintendent of; Mr. Francis G. Bennett, Great Glenn; Dr. Charles R. Box, Lond.; Mr. C. Birchall, Liverpool; Mr. T. B. Browne, Lond.; Bombay Municipal Offices, Superintendent of the Printing Department; Bristol Royal Infirmary, Secretary of; Messrs. Burroughs, Wellcome and Co., Lond.; Dr. J. F. E. Bridger, Bridgetown, Barbados.

C.—Dr. Sidney Coupland, Lond.; Dr. Maurice Craig, Lond.; Central London Throat, &c., Hospital, Secretary of; Mr. F. W. Clarke, Chorlton-cum-Hardy; Mrs. J. Coope, Bunwell; Dr. Henry J. Clarke, Doncaster; Chief Commissioner of the Central Provinces, India, Nagpur, Third Secretary to the; Messrs. Cuxson, Gerrard, and Co., Birmingham; "Conifers," Hampton Wick, Medical Superintendent of; Messrs. Cassell and Co., Lond.; Mr. A. M. Case, St. Margaret's-at-Cliffe; Dr. G. D. Culver, San Francisco; Messrs. Carnrick and Co., Lond.; Messrs. Harry Cox, Lond.

D.—Mr. A. B. Davis, Epping; Mr. G. E. Davidson, Shere; Dumfries and Galloway Royal Infirmary, Treasurer of; Derby County Asylum, Mickleover, Clerk to the; Dr. James Davidson, Neyoor, Travancore; Devonshire Hospital, Buxton, Secretary of; Dr. J. H. Dauber, Lond.; Dover Hospital, Secretary of.

E.—Messrs. Eason and Son, Dublin; Electrical Standardizing Co., Lond.; E. W. D.; Editions d'Art et d'Architecture, Geneva.

G.—Mr. E. M. Gandon, Rhyl; Guest Hospital, Dudley, Secretary of; Globe Express, Lond.

H.—Mr. R. B. Hope, Lond.; Mr. W. B. Holderness, Windsor; Huddersfield Infirmary, Secretary of; Dr. A. Hosetter, Rockford, U.S.A.; Mr. Charles C. Haviland, Frimley Green; Hastings Urban Sanitary Authority, Clerk to.

I.—Dr. W. W. Ireland, Musselburgh; Incorporated Society of Trained Masseuses, Lond., Secretary of.

J.—Dr. W. J. Johnson, Shefford; J. N. A., Brighton; Messrs. W. and A. K. Johnston, Edinburgh.

K.—Messrs. Knoll and Co., Lond.; Miss Beatrice E. Kidd, Lond.; Dr. M. Aston Key, Southsea; Dr. Henry W. King, Chester; Dr. R. G. Kirton, Cairo; Messrs. R. A. Knight and Co., Lond.

L.—Mr. H. K. Lewis, Lond.; Mr. J. B. Lamb, Lond.; Loughborough and District Hospital, Secretary of; Mrs. L. Lockhart Lang, Coupar Angus; Messrs. Lee and Nightingale, Liverpool; Mr. H. Lamond, Glasgow; Dr. Murray Leslie, Lond.

M.—Dr. Hector Mackenzie, Lond.; Mr. John A. C. Macewen, Glasgow; Dr. James H. MacDonald, Paisley; Manchester Guardians, Clerk to the; Mr. J. Murray, Lond.; Manchester Medical Agency, Secretary of; Miss Winifred Muirhead, Larbert; Mr. S. Manshard, Basle; Dr. H. Macnaughton-Jones, Lond.; Dr. A. F. Martin, Bradford; Mrs. Olive Christian Mackirdy, Lond.; Mr. G. G. R. McDonald, Wellington.

N.—Messrs. Nicolay and Co., Lond.; North Staffordshire Infirmary, Hartshill, Secretary of; National Dental Hospital, Lond., Secretary of; Mr. J. O. Neumann, Lond.; Mr. J. C. Needes, Lond.; Mr. H. Needes, Lond.

O.—Professor Wm. Osler, Oxford.

P.—Mr. Y. J. Pentland, Edinburgh; Dr. Owen Paget, Philadelphia; Mr. C. S. R. Palmer, Lond., Mr. F. E. Potter, Lond.; Mr. Herbert J. Paterson; *The Pharmaceutical Journal*, Lond., Editor of; Dr. F. S. Pitt-Taylor, Rock Ferry; Provincial Advertising Agency, Leicester.

Q.—Queen Margaret College, Glasgow, Secretary of; Queen's College, Galway, Registrar of.

R.—Dr. W. Forbes Robertson, St. Abb's; R. J. E.; Messrs. Richardson and Co., Lond.; Rochdale Infirmary, Secretary of; Royal Albert Hospital, Devonport, Secretary of; Messrs. Reynolds and Branson, Leeds; Royal Victoria Eye, &c., Hospital, Dublin, Registrar of.

S.—Dr. Anton Sticker, Berlin; Mr. W. G. Sutcliffe, Margate; Sheffield University, Registrar of; Seltzogene Patent Charges Co., St. Helen's; Southport Infirmary, Secretary of; Messrs. W. H. Smith and Son, Nottingham; Mr. A. Skardon, Lond.; Messrs. G. Street and Co., Lond.; Salford Union, Clerk to the; Seamen's Hospital, Greenwich, Secretary of; St. Peter's Hospital for Stone, &c., Diseases, Lond., Secretary of; The Scientific Press, Lond.; Sanitas Co., Loud.; Mr. J. Sampson, York; Stockport Infirmary, Secretary of; Mr. G. Smith, Aberdeen; Mr. W. E. Sargant, Lond.; Scholastic, Clerical, &c., Association, Lond.

T.—Professor J. J. Thomson, Cambridge; Dr. John H. Tonking, Camborne; Mr. H. Bell Tawse, Nottingham; Taunton and Somerset Hospital, Taunton, Secretary of.

U.—University of London, Principal of.

W.—Dr. George T. Western, Lond.; Dr. Samuel West, Lond.; Messrs. W. Wood and Co., New York; *The World*, Lond., Editor of; Wills, Ltd., Lond., Secretary of; Waverley; Messrs. H. Wilson and Son, Lond.

Z.—Messrs. Zimmerman and Co., Lond.

Letters, each with enclosure, are also acknowledged from—

A.—Mr. B. G. Atkinson, Long Clawson; A. M. P.

B.—Dr. F. Bryan, Earls Colne; Mr. H. Burrows, Lond.; Mr. H. Butterfield, Northampton; Dr. R. Baker, York; Messrs. J. L. Bullock and Co., Lond.; Dr. Brooks, Llandrindod Wells; Dr. W. Bethune, St. Tudy; Surgeon-General G. Bainbridge, I.M.S., Clevedon; Lieutenant F. E. Bissell, R.A.M.C., Hoddesdon; Bayer Co., Lond.; Brighton, Hove, &c., Dispensary, Secretary of; Dr. W. Bickerton-Edwards, Seven Sisters; Mr. A. E. Barclay, Higher Broughton.

C.—Dr. J. H. Collier, Bristol; Mr. F. H. Cooke, Birch; C. A. D.; Miss A. M. Collier, Lond.; Mr. Chaffers, Keighley; Dr. F. B. Connihan, Krugersdorp; Cardiff Infirmary, Secretary of.

D.—Mr. H. Davies, Marazion; Dr. Y. Dawson, Southborne-on-Sea; Mr. R. Davis, Lond.; Messrs. W. Dudley and Son, Wellingborough.

E.—Mr. J. Evans, Maidstone; Mr. J. E. Eltoft, Pontypool; Dr. A. Edington, Leytonstone; Mr. F. G. Ernst, Lond.; Mr. J. Edwards, Liverpool; E. A. F. W.

F.—Mr. F. P. Flood, Cefn Coed; Dr. A. C. Ferguson, Thirsk; F. R.; F. W.; Mr. F. T. Fagge, Llanfairfechan.

G.—Dr. S. A. Gill, Formby; Mr. W. Griffiths, Blaenavon; Grimsby and District Hospital, Secretary of; Messrs. J. and W. Griffin, Walsall; Messrs. R. W. Greeff and Co., Lond.; G. D.; Dr. P. Goold, Macroom; Mr. E. Gooch, Lond.; Dr. J. Gardner, Preston.

H.—Mrs. A. Hilleary, Bude; Mrs Spencer Howard, Lond.; Hastings and St. Leonards, &c., Hospital, Secretary of; Mr. P. Howe, Ashton-under-Lyne; Herefordshire General Hospital, Hereford, Secretary of; Hospital for Sick Children, Lond., Secretary of; H. D. M. C.; Messrs. Hassenstein and Vogler, Geneva; Dr. W. Nevill Heard, Swanage; Mr. F. Harry, Lond.

J.—Dr. W. W. Jones, Brighton; J. A. C.; J. W. S.; J. P. L.; Mr. J. F. Jefferies, Golcen; J. W.; J. H. B.

L.—Dr. R. A. Lambert, Swindon; Messrs. W. Le Lacheur and Son, Lond.; Dr. D. Ligat, Lond.; Staff-Surgeon G. Ley, R.N., Portsmouth; Locum Surgeon, Coxhoe; Locum, West Croydon; Leeds Tuberculosis Association, Secretary of.

M.—Mr. J. Moir, Boscombe; Messrs. J. Menzies and Co., Edinburgh; Messrs. J. Menzies and Co., Glasgow; Macclesfield General Infirmary, Secretary of; Dr. Mortimer, Seven Kings; Dr. J. Munday, Lond.; Monmouthshire Asylum, Abergavenny, Clerk of; Messrs. Maple and Co., Lond.

N.—Northern Medical Association, Glasgow, Secretary of.

O.—Mr. C. A. P. Osburne, Old Catton; O. S.

P.—Mr. J. Power, Gosport; Lieutenant-Colonel F. F. Perry, I.M.S., Lond.; P. H. S.; Dr. N. Panton, Lond.; Mr. R. F. Pawsey, Barnsley.

R.—Messrs. Raimes and Co., York; Rousay Parish Council, Clerk to the; Royal Ear Hospital, Lond., Secretary of.

S.—Dr. H. K. Smyth, Selukwe; Messrs. Salamon and Co., Rainham; S. G.; S. D. S.; Smith's Advertising Agency, Lond.; Sabella Motor Car Co., Lond.; Mr. G. F. Smith, Watford; Messrs. Spiers and Pond, Lond.; Dr. H. Sinclair, Maesteg; Messrs. W. H. Smith and Son, Manchester; South Devon and East Cornwall Hospital, Plymouth, Secretary of; Messrs. W. H. Smith and Son, Lond.

T.—Mr. P. Templeton, Liphook; Captain F. T. Thompson, I.M.S., Rawal Pindi, India; T. H. B.; T. J.; Mr. J. Thin, Edinburgh.

W.—Dr. A. Walker, Mid-Calder; Mr. J. T. Ainslie Walker, Lond.; Messrs. W. J. Wilcox and Co., Lond.; Captain Forbes Winslow, R.A.M.C., St. Leonards-on-Sea; Mr. W. A. Wharram, Leeds; Dr. W. H. O. Woods, Aldermaston; W. H.; Mr. C. H. Wilson, Ballycastle; Messrs. Wykes and Co., Leicester; Mr. A. H. Wade, St. Albans; Weston-super-Mare Hospital, Secretary of.

EVERY FRIDAY. **THE LANCET.** PRICE SEVENPENCE.

SUBSCRIPTION, POST FREE.

FOR THE UNITED KINGDOM.		TO THE COLONIES AND ABROAD.	
One Year	£1 12 6	One Year	£1 14 8
Six Months	0 16 3	Six Months	0 17 4
Three Months	0 8 2	Three Months	0 8 8

Subscriptions (which may commence at any time) are payable in advance.

ADVERTISING.

Books and Publications ...	Seven Lines and under	£0 5 0
Official and General Announcements	Ditto	0 5 0
Trade and Miscellaneous Advertisements and Situations Vacant	Ditto	0 4 6
	Every additional Line	0 0 6

Situations wanted: First 30 words, 2s. 6d.; per additional 8 words, 6d.
Quarter Page, £1 10s. Half a Page, £2 15s. An Entire Page, £5 5s.

An original and novel feature of "THE LANCET General Advertiser" is a Special Index to Advertisements on pages 2 and 4, which not only affords a ready means of finding any notice but is in itself an *additional* advertisement.

Advertisements (to ensure insertion the same week) should be delivered at the Office not later than Wednesday, accompanied by a remittance.

Answers are now received at this Office, by special arrangement, to advertisements appearing in THE LANCET.

The Manager cannot hold himself responsible for the return of testimonials, &c., sent to the Office in reply to Advertisements; copies only should be forwarded.

Cheque and Post Office Orders (crossed "London and Westminster Bank, Westminster Branch") should be made payable to the Manager, Mr. CHARLES GOOD, THE LANCET Office, 423, Strand, London, to whom all letters relating to Advertisements or Subscriptions should be addressed.

THE LANCET can be obtained at all Messrs. W. H. Smith and Son's and other Railway Bookstalls throughout the United Kingdom. Advertisements are also received by them and all other Advertising Agents.

Agent for the Advertisement Department in France.—J. ASTIER 31, Rue Bapts, Asnières, Paris.